HP DesignJet 600 Plotter
User's Guide

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HP DesignJet 600 Plotter

About the plotter

The HP DesignJet 600 plotter is a large-format, monochrome plotter that uses HP's inkjet technology. This plotter produces high quality drawings for engineering and mechanical drafting/design applications. You can plot on paper, vellum, translucent media, and HP InkJet polyester film.

Here are some key features:

Sheet and roll loading You can load sheet media in standard and odd sizes from A4/A through A0/E, including architectural sizes. Load rolls in either 24- or 36-inch widths.

Automatic cutter and output bin for unattended plotting Automatically cuts and stacks up to 20 drawings without user intervention.

Draft, Final, and Enhanced plotting modes Use the plotter's front panel to choose the combination of speed and quality that suits your needs for each drawing.

Parallel, serial (RS-232-C), and modular (optional) interfaces The plotter comes with parallel and serial (RS-232-C) interfaces. There is also a slot for a modular interface card, which can be purchased separately for additional connectivity.

4–20 MB installed RAM Unless you purchase additional memory, the plotter comes equipped with 4 MB of RAM. You can install up to 16 MB more RAM, for a total of 20 MB RAM.

window

front panel

media lever

roll cover

media bin
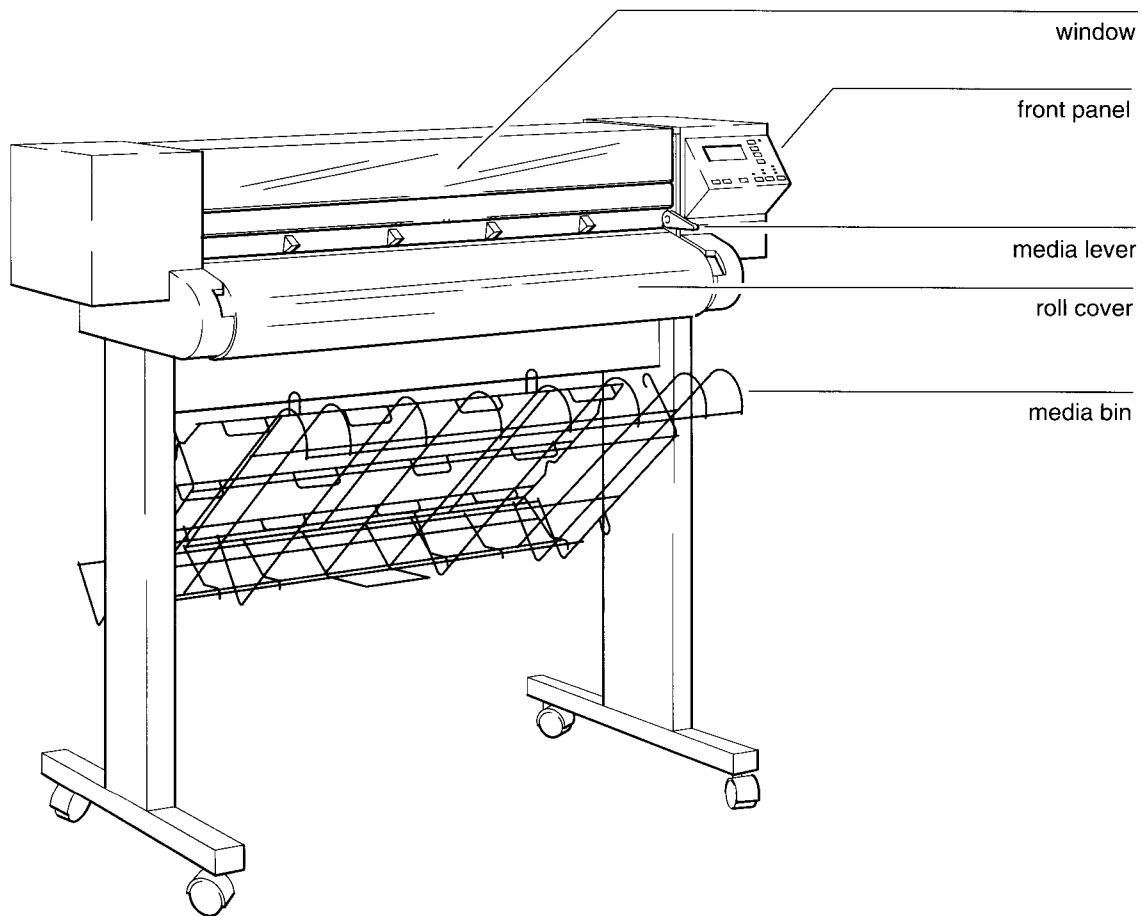
In This Book

This manual is your guide to using your plotter. It describes how to use and care for the plotter.

While it's not necessary to read the manual from cover to cover, you should become familiar with chapters 1 and 2. After that, your particular needs will determine how you use the rest of the manual.

Chapter 1 describes how to use the front panel.

Chapter 2 describes how to load and handle media and pens.

Chapters 3–8 describe each of the front panel menu options.

Chapter 9 describes how to solve plotter problems, if necessary.

Reference lists error messages, plotter specifications, and includes a Printer Job Language (PJL) summary.

Regulatory contains various regulatory statements and how to order material safety data sheets (MSDS).

Glossary provides you with definitions for terms used in this manual with which you may or may not be familiar.

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3 Managing your plots

reducing media waste, queueing, nesting, nesting and page size interaction, allowing for sufficient margins, selecting your nesting order, using queueing and nesting, making copies of plots

4 Defining your page format

page size and roll media, getting the most from your roll media

5 Defining pen settings

using pen palettes

6 Configuring your plotter

ensuring quality plots, letting the plotter help you load poorly cut media

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1

Using the front panel

Using the front panel

The *menu* buttons let you scroll through the menus and select the options you want.

Previous

Busy

Enter

Print Quality

Final
Enhanced   Draft

Paper
Transl/Vel
Film

Cancel   Form Feed/Cut Access Pens

Media Type
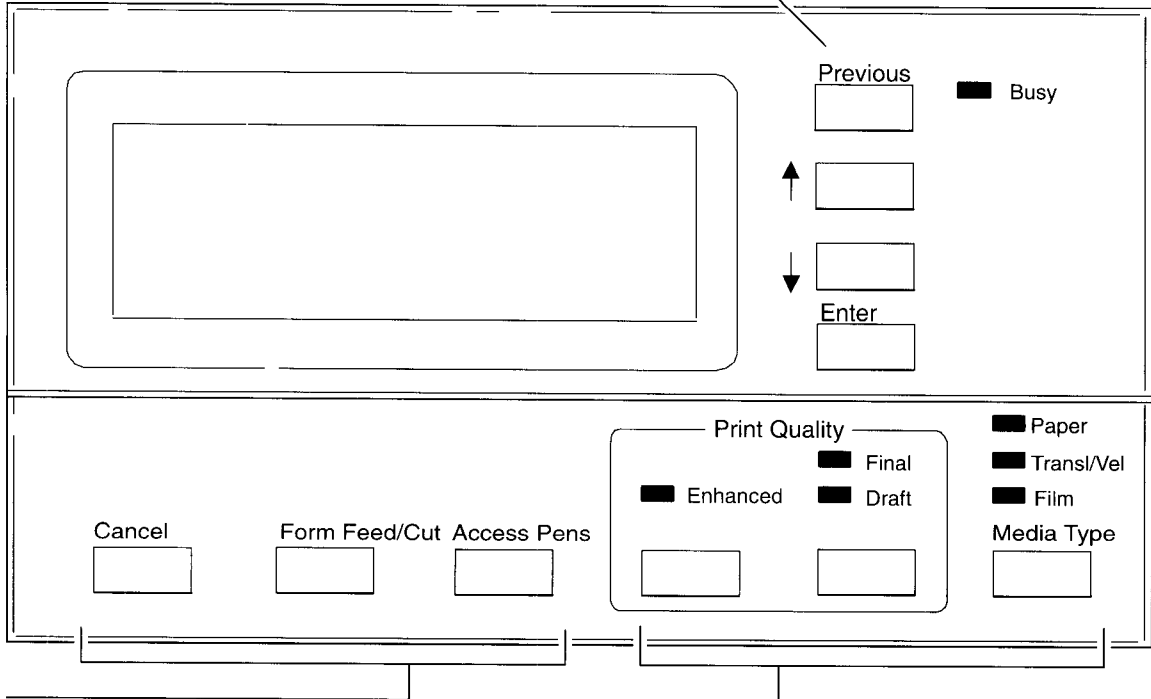
The *action* buttons let you quickly access common plotter functions.
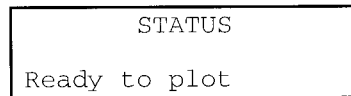
The *plotting mode* buttons let you define your printing quality.

Virtually all interaction with the plotter involves using the front panel. The front-panel display shows several different types of information.

- Menu level (and corresponding menu options).

- Messages (such as the current plotter status, errors, and prompts).

A word about the status screen

The Status screen tells you the current state of plotter conditions. For example, when you first turn on the plotter, it displays the message *Initializing*. When the message *Ready for media* or *Ready to plot* displays, you can send plot data from your computer or access any of the plotter menus to review or change settings.

```
            STATUS

Ready to plot
```

To move to the menu structure from the Status screen, press **Enter**. If you are in the menu system and want to move to the Status screen immediately, press **Previous** repeatedly until the Status screen displays.

If there are no error messages or other messages requiring your attention, the Status screen automatically redisplays.

Using the menu buttons

The menu buttons are your primary method of finding and using your plotter's features.

Previous

Previous moves to the next highest menu level.

Use the ↑ and ↓ buttons to scroll through menu options or respond to action or error messages.
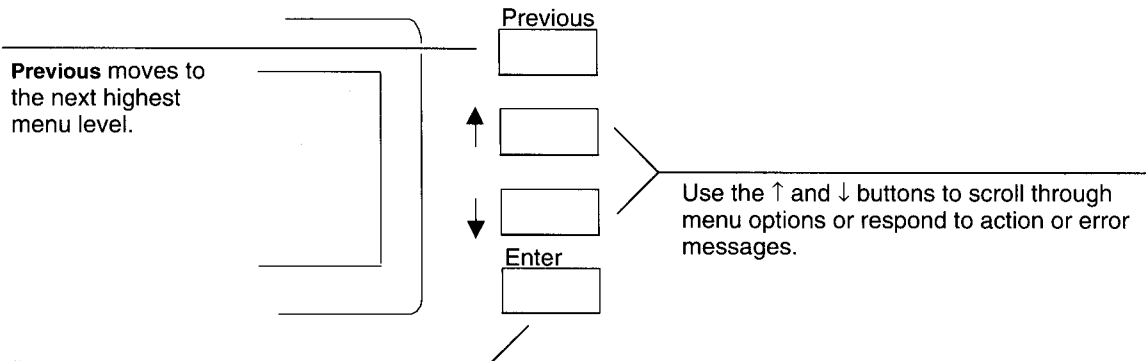
Enter

Enter moves from the Status screen into the menus structure. It also selects a menu or confirms the displayed variable choice.

With these buttons you can do the following.

- Move through the levels of the menu structure.

- Review menu options.

- Set a pen, drawing, or plotter attribute.

- Exit to a previous menu without making any changes.

To select and confirm a menu option

9   Press the **Enter** button to move from the Status display to the menu structure.

10 Press either ↓ or ↑ to review the options at the current menu level.

11 When the menu or option you want displays, press **Enter**.

12 Repeat from step 2 until you reach the option you want to set.

Many menus contain subgroups of plotter options. Pressing **Enter** then displays the next level of options. When you have reached the final level of your option, pressing **Enter** confirms your menu selection or value. In most instances, your choice is saved in the plotter's continuous memory. This means it is not erased or reset when you turn off the plotter.

To exit to a previous menu

•   Press the **Previous** button at any menu option to move to a previous menu.

If you continue to press **Previous**, you move to higher levels of the menu structure. The words "MENUS" indicate the top level of the menu structure. Pressing **Previous** again displays the Status screen.

If you are in a menu that has variables, pressing **Previous** returns you to the previous menu without changing any values or without saving any menu changes. You can confirm menu changes only by pressing **Enter**.

Using the action buttons

The action buttons let you quickly gain access to functions you will frequently use.

Cancel stops plotting, accuracy calibration, and media loading.

Cancel   Form Feed/Cut Access Pens

Form Feed/Cut advances the page and, if roll media, cuts it.

Access Pens brings the pen carriage out to the plotting area. (The window *must* be closed.)
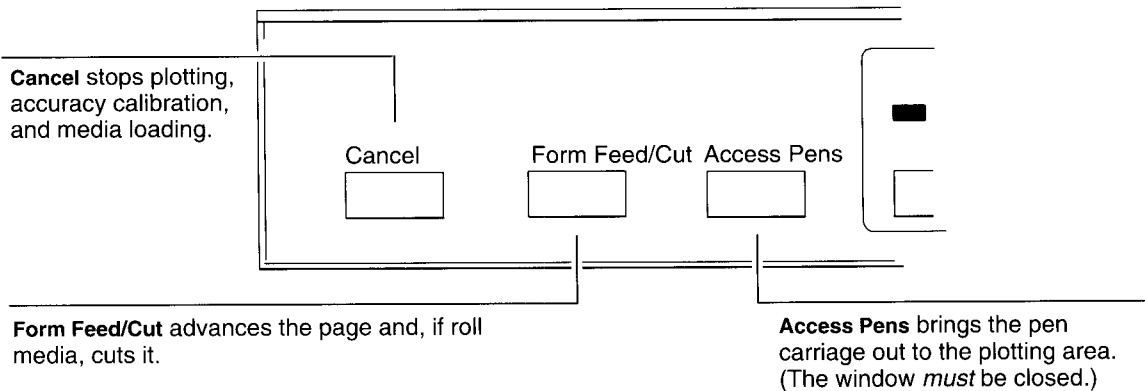
To cancel a plot or process

• Press **Cancel** on the front panel.

Cancelling plotting When plotting, **Cancel** stops plotting the current drawing but does not immediately remove it from the queue. If queueing is on and there are no more drawings are in the queue, the plot remains in the buffer. You can replot the cancelled plot by moving it to the top of the queue. Refer to chapter 3 for explanations of queue management features.

If queueing is off, an incoming plot overwrites the cancelled plot in the buffer. If you want to replot the cancelled plot, you must resend it from your computer.

Cancelling accuracy calibration   When cancelling an accuracy calibration (refer to chapter 8 for information about this feature), the plotter advances the media and cancels the process. If you want to redo the accuracy calibration, you must start it from the beginning.

Cancelling media loading   When cancelling the loading of media, the plotter instructs you to remove the media before you can continue.

To advance (and cut) the page

• Press **Form Feed/Cut** on the front panel.

When *sheet* media is loaded, the plotter advances the page and hangs it from the rollers. Pull the media to remove it from the plotter.

When *roll* media is loaded, the plotter advances the page 41 mm (1.6 inches) and cuts the page. If the plotter is drying the ink, pressing **Form Feed/Cut** causes the plotter to ignore the ink-drying time and immediately drop the page into the media bin. If the plotter is waiting for a timeout period, pressing **Form Feed/Cut** causes the plotter to ignore the timeout setting and immediately begin plotting.

To access pens

• Press **Access Pens** on the front panel.

Note that the pen carriage does *not* move when the window is up. When the carriage stops near the front panel, lift the window to change, reseat, or swap pens.

Using the plotting mode buttons

The plotting mode buttons let you determine the level of quality for your plot.
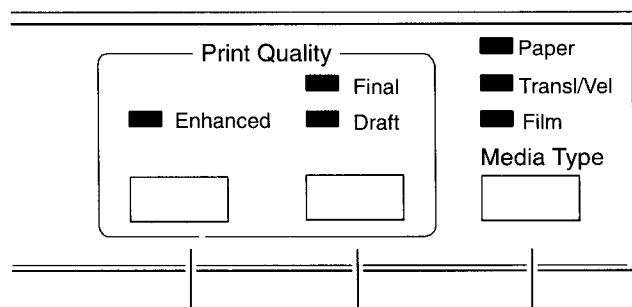
Print Quality buttons set the quality parameters for the selected media type.

Media Type indicates the type of media loaded in the plotter.

The plotter combines the selections from these two buttons to set certain plotting conditions. Depending on your environmental conditions and the brand of media you use, you might get excellent print quality more quickly by choosing a different media type than the actual media loaded in the plotter. For example, you might specify paper when vellum is loaded. Refer to "Reference" at the end of this manual for the recommended plotting environment specifications.

The following shows how the **Print Quality** and **Media Type** combination affects your plotting time. (Times given do not include file transmission times or ink-drying times.)

Selected Media Type	Selected Print Quality	Resolution[1] (dpi)	Maximum plotting time (minutes)	
			D-size/A1[2]	E-Size/A0
Paper	Draft	300×300	2.3	3.9
	Final	300×300	3.1	5.3
	Enhanced	600×600	6.5	10.6
Transl/Vel	Draft	300×300	2.3	3.9
	Final	300×300	5.8	10.6
	Enhanced	600×600	11.9	21.2
Film	Draft	300×300	5.8	10.6
	Final	300×300	5.8	10.6
	Enhanced	600×600	11.9	21.2

1 Addressable resolution.
2 Times given for D/A1 media are representative of a model C2847 plotter.

To set a print quality

• Press the left button for *enhanced* (600×600 dpi) mode, or the right button to toggle between *draft* and *final* modes. Both draft and final modes are 300×300 dpi; the main differences are speed and line quality. Also, with the exception of film, draft mode uses significantly less ink than final mode. Note that you cannot mix the modes (e.g., you cannot set an *enhanced draft* mode).

You can switch between draft and final modes as you plot; the change becomes effective within seconds. However, you cannot change from draft or final mode to enhanced mode while plotting, nor can you change from enhanced mode to either of the others. When switching to or from enhanced mode in the middle of a plot, the plotter remains in its current mode and flashes the new mode light. The plotter switches to the new mode as soon as the current plot is finished plotting.

To set a media type

• Press the **Media Type** button until the front panel light indicates the type of media you are loading (paper, translucent and vellum, and film).

Using the front panel menus

The following pages show the front panel menu structure. There are eight main menus, most with an option or series of submenus below it. Access the front panel menu structure from the "STATUS" display by pressing the **Enter** button.

Subsequent chapters tell you about the individual features in each group of menu options.

Plot mgmt   controls the activity of plots in the queue, including specifying copies. Refer to chapter 3 for more information.

Page format   specifies the size and orientation for your plots. Refer to chapter 4 for more information.

Pen settings   defines *logical* pen attributes. Refer to chapter 5 for more information.

Plotter setup   indicates certain plotter operating conditions and how the plotter interprets instructions. Refer to chapter 6 for more information.

I/O setup   controls how the plotter interacts with your computer. Refer to chapter 7 for more information.

Utilities   tracks current plotter information and performs alignment, calibration, and reset procedures. Refer to chapter 8 for more information.

Demo plot   lets you print the internal demo plot. Refer to the end of this chapter for more information.

Pause next plot   stops the current plot so you can set a different print quality or specify a different media type. Refer to end of chapter 3 for more information.

Note that your software settings override the front panel menu settings. Any features set through your software do not need to be set on the front panel.

Menu structure (Defaults indicated by ◆)   (1 of 3)

menu	option	submenu 1	submenu 2	submenu3
Plot Mgmt				
	Queue mgmt=	*Plot # (nK vectors)*		
		Plot #=	Copies=	1◆...99
			Delete plot	
			Move to Top	
			Statistics	Page Size=width and length[1]
				RAM used
	Queue=	On◆		
		Off		
	Nest=	Off◆		
		Optimal	Nest wait=	2 min◆, 30 sec, 5 sec
		In Order	Nest wait=	2 min◆, 30 sec, 5 sec
Page format				
	Size=	Best ISO A (◆[2])		
		ISO A4 – A1/A0		
		Best ANSI		
		ANSI A – D/E		
		Best JIS B		
		JIS B4 – B2/B1		
		Best ARCH		
		ARCH A – D/E1		
		Over A2, A1		
		Inked area[3]◆		
	Rotate=	0◆		
		90		
		180		
		270		
	Margins=	Normal◆		
		Expanded		
	Mirroring=	Off◆		
		On		

1 Page size specifications reflect front panel page size selections.
2 This is the default for plotters with code revisions lower than 3.1.
3 This feature is available and is the default in later plotter models with code revision 3.1 or higher. Refer to Utilities/Statistics.

Menu structure (Defaults indicated by ♦)   (2 of 3)

menu	option	submenu 1	submenu 2	submenu3
Pen Settings				
	Palette=	Software♦ Factory[1] Palette A Palette B		
	Define Palette A Define Palette B	Pen number *nn*	Width	0.13, 0.18, 0.25, 0.35♦, 0.50, 0.65, 0.70, 0.80, 0.90, 1.0, 1.4, 2.0, 3.0, 5.0, 8.0, 12.0 mm
			Shade	100♦, 90, 80...0♦%[2]
	Merge control=	Off♦ On		
Plotter setup				
	Lang=	7586, HP–GL/2♦ HP-GL/2	Timeout=[3]	0.5, 1, 2♦, 3, 5, 7, 10, 15, 20, 25, 30 minutes
			Terminator=	Normal♦ Special
	Dry time=	Normal♦ Fast None		
	Pen check=	On♦ Off		
	Media bypass=	Off♦ On		
	Quality=[4]	Software♦ Plotter		
I/O setup				
	Modular	MIO specific menus		
	RS-232-C	Config=	Factory♦ Config A Config B	

1 Palette A and B are initially the same settings as the Factory palette.

2 For pen 0, the default shading is 0%; for pens 1−15, the default value is 100%

3 For 7586, HP-GL/2 mode only.

4 This feature is available in later plotter models with code revision 3.1 or higher.
   Refer to Utilities/Statistics.

Menu structure (Defaults indicated by ◀)   (3 of 3)

menu	option	submenu 1	submenu 2	submenu3
	RS-232-C (*continued*)	Define config A/B	Baudrate=	38400 19200 9600◀ 4800 2400 1200
			Handshake=	Both◀ Hardwire Xon/Xoff
			Parity=	None (0)◀ Even Odd Mark
Utilities				
	Statistics	Max X=*nnn* mm Max Y=*nnn* mm Code rev=*n.n* RAM present=*nn* MB ROM SIMM=None, Kanji		
	Resets	Reset Plotter Default menu		
	Align Pens			
	Config Plot			
	Language=	English◀ Deutsch Francais Italiano Español Katakana Português		
	Accuracy	Restore factory Recalibrate	Create plot Measure plot	
Demo Plot				
Pause next plot				
	Continue plotting			

Navigating the menu structure

The following tells you how to interpret the menu format and conventions.

The top line of the display indicates the current menu level; the lower line shows one of the options for that level. The ↑ and ↓ buttons show you all of the options at that level. A right-arrow character (→) on the front panel display immediately following the option name on the lower line indicates another level of choices for that option.

current menu level

```
            MENUS

Plot mgmt→
```

option with a submenu

Enter — Pressing **Enter** moves you to the next menu level
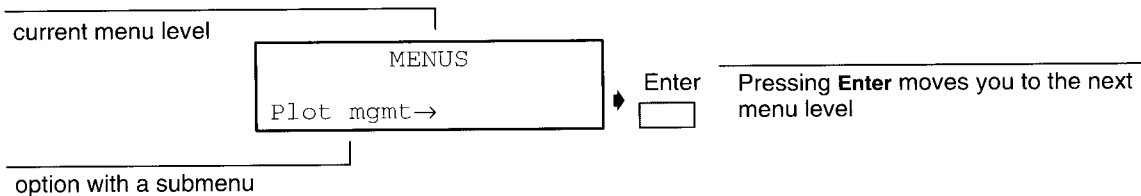
If there is no right-arrow on the second line, selecting the option causes the plotter to perform a specific feature (such as aligning pens) or plot specific data (as on a demo plot).

```
          UTILITIES

Align pens
```

submenu option without a submenu

Enter — Pressing **Enter** performs a feature or plots specific information
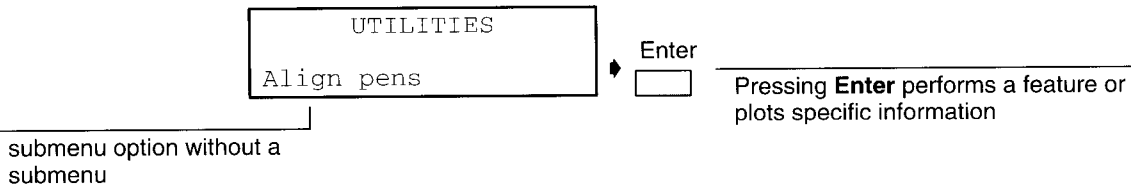
Oftentimes the option line includes an equal sign (=). This specifies the current status of the option. When scrolling through the lowest level of options, the currently selected value for that feature is marked with an asterisk (*).

```
       MENUS

 Page Format→
```
Enter

The equal sign (=) shows the current setting for the option

```
      PAGE FORMAT

 Size=Best ISO A→
```
Enter

```
         SIZE

 Best ISO A*
```
↑↓ Enter

The asterisk (*) indicates the current setting as you scroll through the other choices

Pressing **Enter** confirms your selection
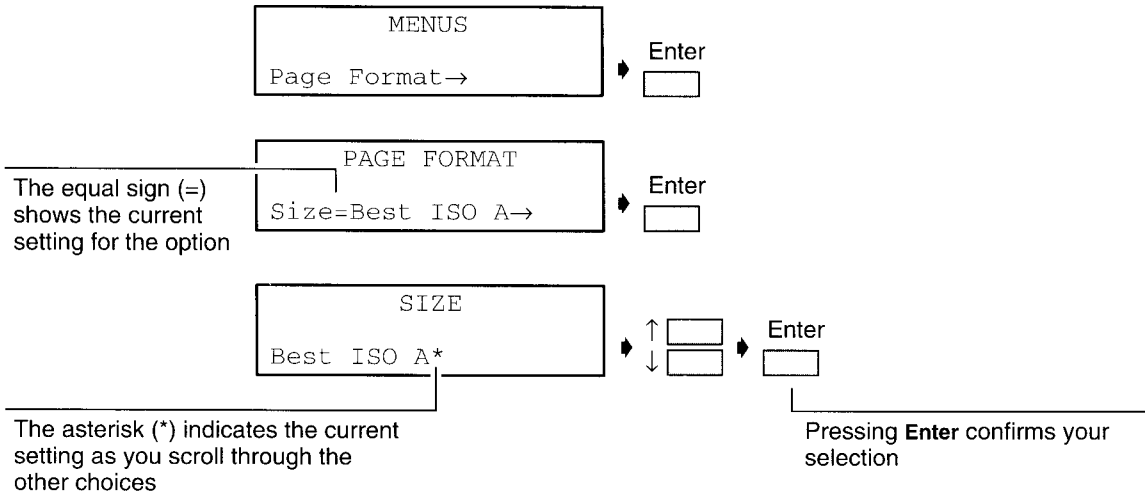
To produce a demo plot

1 Load media (refer to chapter 2). You can load any standard size media available, the plotter scales the demo plots to the specified page size.

2 From the Status screen, press **Enter**. Press ↓ twice to scroll to Demo plot, then press **Enter**.

The demo shows examples of the plotter's capability in several applications and includes a variety of line widths and shading.

```
        STATUS

 Ready to plot
```
→ Enter → ↓ ☐ → ↓ ☐

```
        MENUS

 Demo plot
```
→ Enter
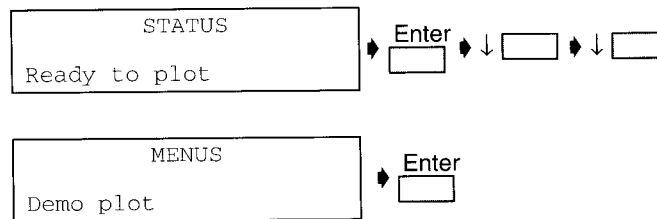
Handling media and pens

Selecting and caring for your media before and after the plot

Your plotter handles a wide variety of media. The quality of drawing you need determines the type of media you want to use. For example, to produce a preliminary plot, use an economic plotter paper, for final or archivable plots, ensure the best line quality by using polyester film. The following describes some of the characteristics of several types of media.

Media type	Characteristics
Plotter paper	Smooth surface, good for everyday use. Low cost.
Translucent bond	Good for diazo reproductions and preliminary drawings. Low cost.
Vellum	Diazo-reproducible, archivable, translucent. Moderate cost.
Single-matte Inkjet polyester film	Diazo-reproducible, archivable, very stable, pencil-writable on the matte side. Expensive.

For "plain" media, you can expect acceptable print quality from most leading brands. We recommend against using xerographic media (copy paper); print quality may be poor. For consistent, excellent print quality, use Hewlett-Packard media.

Media dimensions

Your plotter can handle media widths from 21 cm (8.3 inches) to 91.7 cm (36.1 inches). The media length for sheet media must be within 28 cm (11 inches) and 130 cm (51 inches). For sheet media approximately 21 cm × 28 cm, load the short edge first.

Note that media thickness affects the distance the media moves with each rotation of the internal roller. Media thicker than 4.8 mil (.0048 inches) increases the distance so lines are longer than specified. Thinner media has the opposite effect.

Using the media bin

When the plotter is finished plotting on roll media, it automatically cuts and stores plots in the plotter's media bin. You can store up to 20 plots in the media bin.

The bin has an adjustable shelf (dark gray) with three settings for different-sized plots. These settings keep longer plots from falling on the floor, and shorter plots from curling or shuffling in the bin.

Caring for media

- Load curled media with the curl up. (The exception to this is film media, which must always be loaded with the plotting side [matte side] down.)
- Remove loaded sheet media if you won't be plotting on it right away. A sheet left loaded in the plotter too long may curl and crumple while loading.
- Handle film by the edges or wear cotton gloves. Skin oils can interact with ink and cause it to smear. Always load film with the matte side down (shiny side up).
- Keep the plotting environment within 20-80% relative humidity and 10–40°C (50–104°F).
- Store media in an environment within 20-80% relative humidity. If the storage environment is outside this range, let the media stablize in the plotting environment for 15 minutes after you load it and before plotting.

Handling roll media

- Be sure the roll media has a core with an inner diameter of 5.1 cm (2.0 inches). Roll media must be flush with the right edge of the core, not "telescoped" on the core.
- Make sure the leading edge of the media is straight and that you load each side evenly. Refer to "Trimming the leading edge of media" (later in this chapter) for more instructions on trimming the leading edge of roll media.

To remove a spindle from the plotter

1 Open the roll cover.
2 Pull each side of the spindle.
3 Close roll cover.

You don't have to remove the spindle to load a sheet.
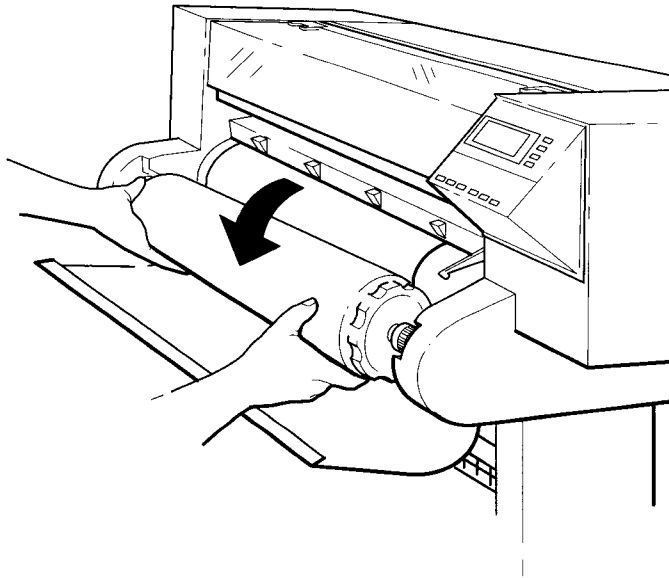
To remove a used media roll from the spindle

1 Remove the used spool from the plotter.

2 Rest the used spool upright on the floor so that the large, scalloped media stop is on top.

3 Pull out the media stop/spindle and set it aside.

4 From the other side of the used roll, slip out the endcap.

If you are not immediately loading another roll of media into the plotter, replace the endcap on the spindle.

Pull out spindle.
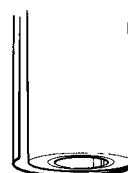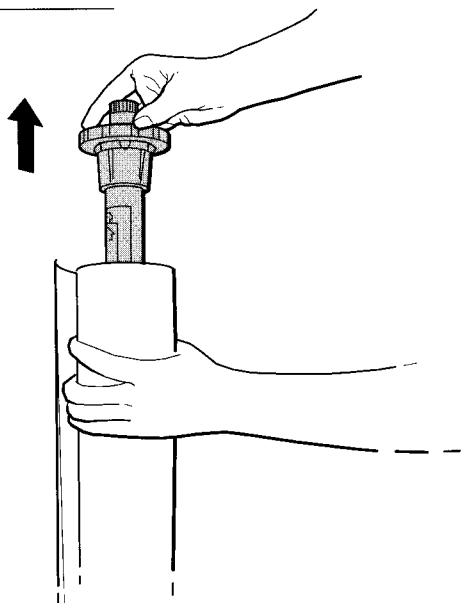
Remove end cap.

To put a new roll on the spindle

1 If necessary, remove the small endcap from the spindle.

2 Set the media stop on the floor with the spindle up and slide the new roll onto the spindle. The leading edge of the media *must* wind clockwise.

If the media stop falls off, snap it back in. Push hard.

3 Push the endcap into the core, making sure the tabs are flush against the edge of the roll.

Slide roll onto spindle.
Media winds clockwise.
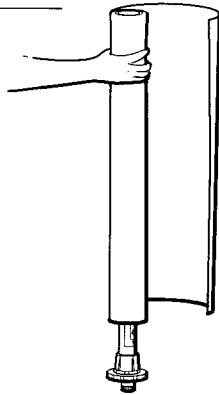
Push endcap onto spindle.
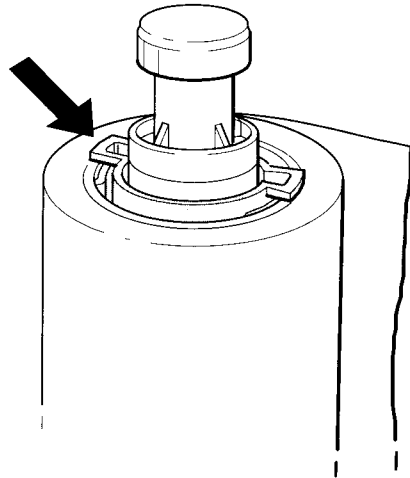
To place a roll of media into the plotter

1 Be sure the plotter wheels are locked to prevent the plotter from moving.

2 Open the roll cover.

3 Insert the spindle with the large media stop to the right. Push in firmly on both ends. Be sure the media remains flush against the media stop.

The media winds over the top of the roll toward the front of the plotter.

Open roll cover.

Insert spool with media stop at right. Push in firmly on both ends.
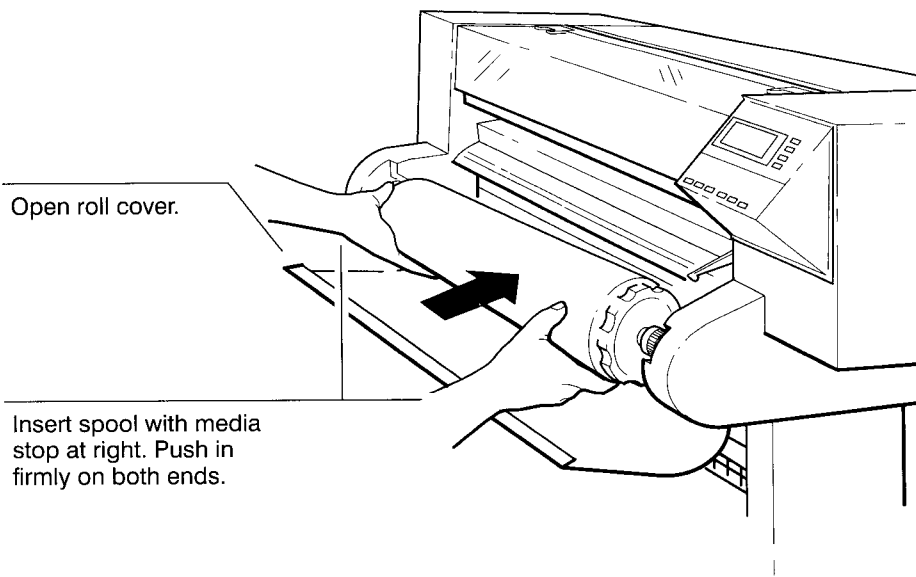
To load roll media

1 Place roll media in the plotter (refer to earlier instructions).

2 Check the leading edge as it unwinds from the spool. If it is uneven, refer to "Trimming the leading edge of roll media" just following these procedures.

3 Pull the media up and, holding it from the sides, align the right edge of the media with the perforated line on the entry platen.

4 Insert the leading edge into the plotter until the page buckles slightly. Let go of the media when the plotter begins to pull it in.

5 Press ↓ next to the display window to indicate you are loading roll media.

Lower media lever.

Align media with perforation.

Insert media until it buckles slightly.
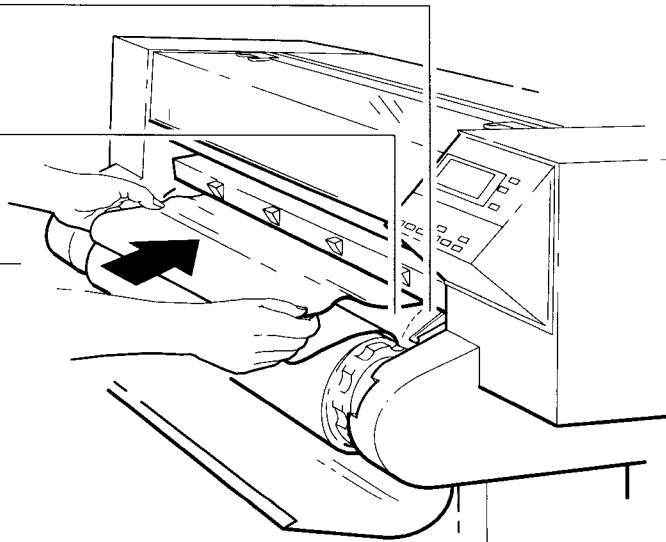
6 When the front panel instructs you, raise the media lever.

7 When "Pull ↓ / Align ↔ edges to roll" displays, pull the left and right edges of the roll toward you until taut. Then align the left and right edges of the media so that they are flush with the left and right edges of the roll. When the front panel instructs you, lower the lever.

8 When the plotter instructs you to close the roll cover, rewind the media stop to take up any slack in the roll, make sure the leading edge of the media is outside the roll cover, then close the roll cover.

9 Press ↓ to continue. The plotter trims off the first few inches of media.

10 Select the appropriate media type and print quality you want for your plot (refer to "Using the plotting mode buttons" in chapter 1).

```
  Pull ↓ / Align ↔

edges to roll
```
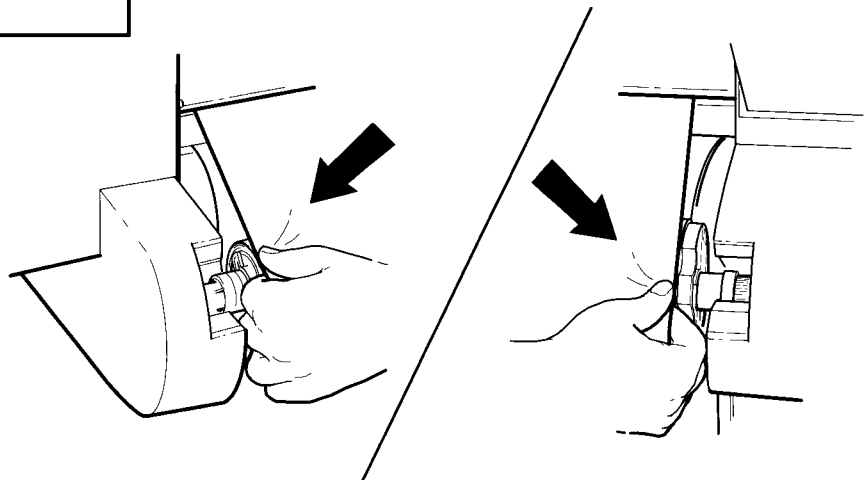
Trimming the leading edge of roll media

The leading edge of media must be straight to ensure successful loading of roll media. Use the following instructions to carefully trim the media.

1 Pull the media over the top of the machine and lay it over the cutting track.

2 Remove the knife from the back pocket of the plotter.

WARNING **The knife blade is sharp. Be sure the plotter's wheels are locked. Keep fingers clear of the cutting path. Keep knife away from children.**

3 Using the knife located on the back of the plotter, cut off the first few inches of the media.

4 Retract the blade and return the knife to its pocket.
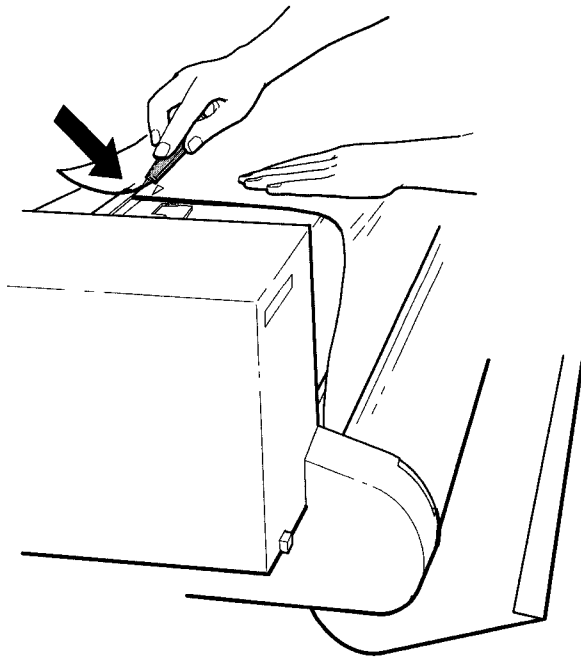
To adjust the media bin

1 Determine the largest plot size you will be sending and refer to the table below for the bin setting you want to use.

2 Pull the handle up or down and rest the hooks over the bar for the setting you want.

The tabs on the left side of the bin mark the adjustment bars for these settings. If plotted media is not stacking properly, place a sheet of scrap paper in the bin that is at least equal to the plot size you are creating.

Bin setting	1	2	3
Plot length	22" to 24" (558 to 609 mm)	33" to 38" (838 to 965 mm)	38" to 51" (838 to 1295 mm)
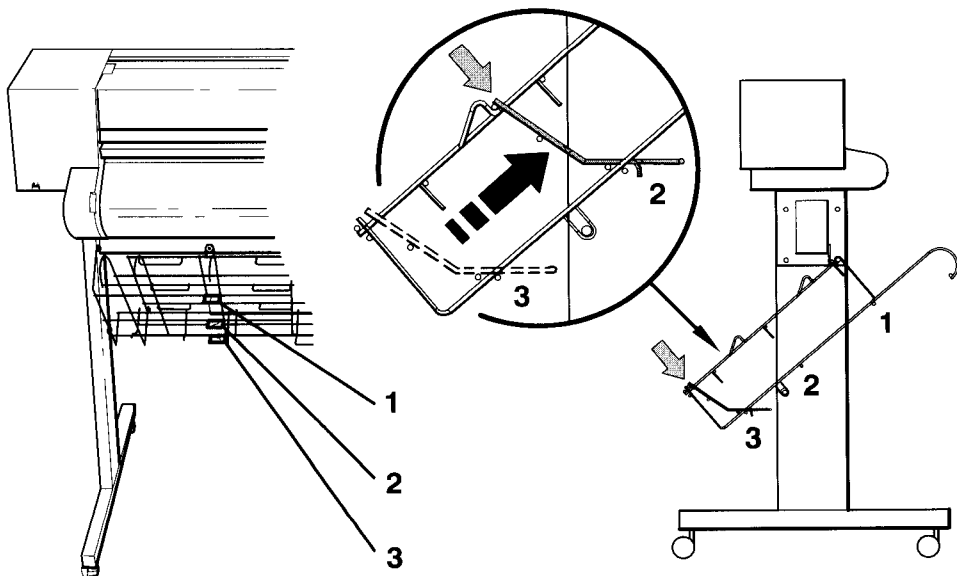
To unload roll media

1 Lift the media lever to release the media.

2 Open the roll cover and turn the notched media stop to wind the media onto the roll.

3 Close the roll cover.

4 Lower the media lever.
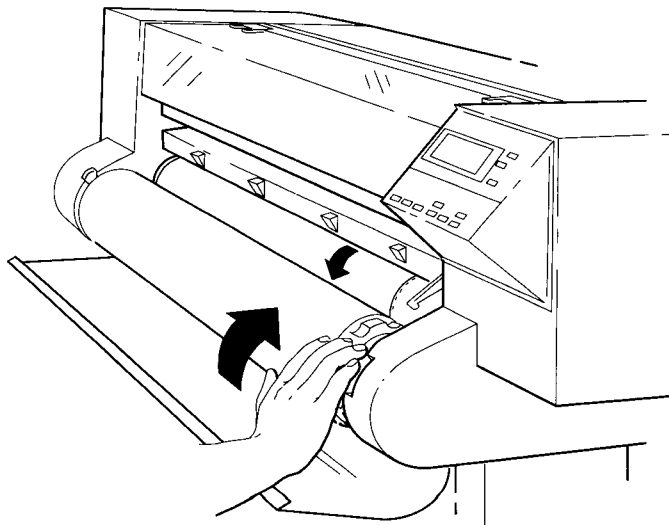
To load sheet media

1 Make sure the media lever is down and the roll cover is closed.

2 Holding the media from the sides, align the right edge with the perforated line on the entry platen.

3 Insert the media until it buckles slightly. Let go of the media when the plotter begins to pull it in.

4 Press ↑ next to the display window to indicate you are loading sheet media.

5 Select the appropriate media type and print quality you want for your plot (refer to "Using the plotting mode buttons" in chapter 1).

The plotter pulls the sheet in and out to check its size and alignment, then advances it to the start of the page. When sheet loading is complete, the "STATUS Ready to plot" message is displayed.

Lower media lever.

Align media with perforation.

Insert media until it buckles slightly.
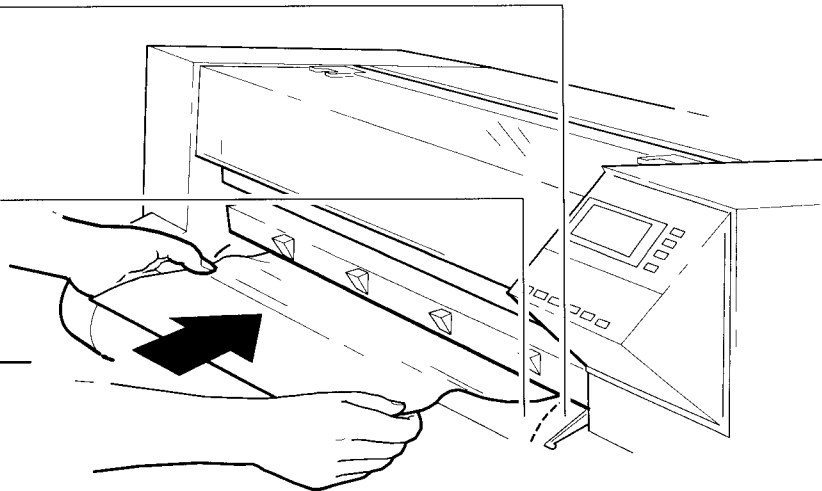
To remove sheet media

- To remove an *unplotted* sheet, press **Form Feed/Cut**, then pull out the sheet when the plotter is finished feeding it out.

- Or lift the media lever, pull out the sheet and lower the lever.

  We recommend that you let the ink dry before you remove the plot. This prevents smearing. Change the ink-drying time using the Plotter Setup menu (refer to chapter 6).
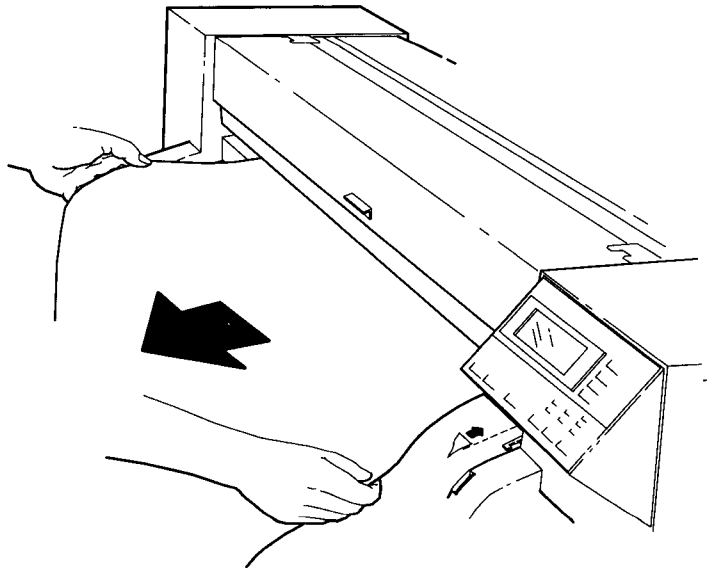
To clear a media jam

1 Turn off the plotter.

2 Raise the window and the lever.

WARNING

Be careful when reaching inside the plotter; some parts have sharp edges. Don't touch the stainless steel strip behind the pen carriage warning stripes; it is very sharp.

Keep hair, jewelry, clothing, and foreign objects away from the plotter mechanisms.

3 Push the carriage away from the jammed media if necessary. Handle only the solid plastic parts of the carriage. *Do not touch the stainless steel strip* behind the pen carriage warning stripes; it is very sharp.

4 If the plotter was cutting media when the jam occurred, push the cutting carriage (not shown) to the right as far as it will go.

Don't touch the stainless steel strip!
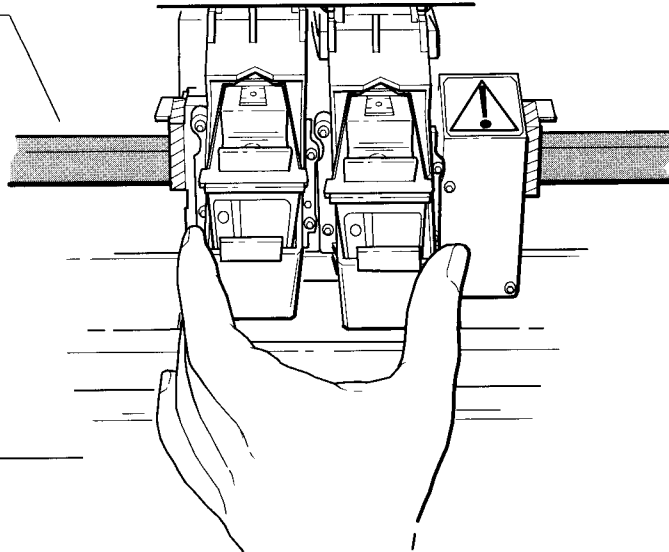
Push the pen carriage away from the jammed media.

5 Remove the jammed media (you can lift the bail just inside the front of the plotter to retrieve the media).

6 If media is still stuck in the media loading slot, run a small, thin piece of cardboard along the entire length of the platen to clear any from the plotter.

7 Lower the window and the lever and turn on the plotter.

8 Press the **Form Feed/Cut** button to eject any pieces of media that are still in the media path.
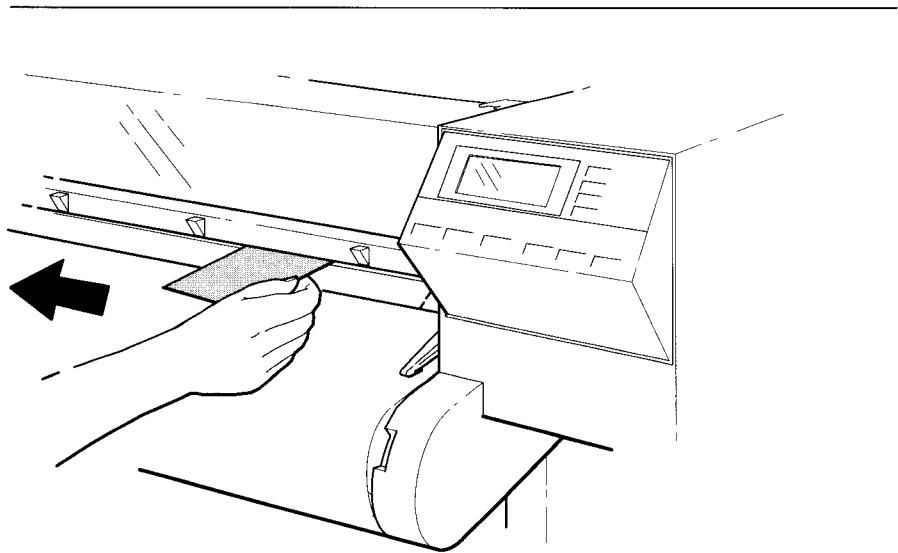
Handling pens

Always replace or reseat pens while the plotter is on. Replace the pens at the following times.

- Pen checking is on and you elect to service pens when the plotter prompts you. Refer to "To turn on pen checking" in chapter 6 for more information.

- Pen checking is off and you suspect the pens are clogged.

- Poor plot quality indicates the pens are out of ink.

- When you are troubleshooting plot quality problems.

Ink usage tends to be similar for both pens. So, when you replace one pen, we strongly recommend that you replace the other pen at the same time. This keeps the ink in both pens at approximately the same level. If you don't replace both pens each time, you will go through the pen replacement procedure twice as often for out-of-ink pens.

Reseat the pens in the pen carriages when the plotter display prompts you. The electrical contacts on the pen are not making the necessary connection in the pen slot.

Automatic pen alignment

The plotter automatically performs a pen alignment procedure whenever you remove a pen from its slot and then put it back. This procedure takes about four minutes to complete, so you only want to remove a pen if you need to replace, reseat, or clean it. (Optionally, you can choose to align the pens whenever you want. Refer to "To align the pens" in chapter 8 for more detailed information.)

Limiting exposure to air

Each time you access the pens for loading, reseating, or cleaning, the pen nozzles are exposed to the air. If the pen nozzles are exposed to the air (except during plotting) for more than a few minutes at a time, they are susceptible to clogging and drying.

To load pens

1 Press the **Access Pens** button and wait for the pen carriage to come to a complete stop next to the front panel. (If you are responding to a "Service pens" request, begin with step 2.)

2 When the pen carriage stops, open the window.

3 Refer to the display to see which pen to replace.

If the plotter does not specify either pen, you do not *need* to replace either pen. To return to plotting, lower the window.

WARNING   **Don't touch the stainless steel strip behind the pen carriage warning stripes; its edge is very sharp.**

Keep hair, jewelry, clothing, and foreign objects away from the plotter mechanisms.

4 Press down slightly on the pen you are replacing and pull the pen toward you. Remove the pen from its slot and discard it.

Don't touch the
stainless steel strip!
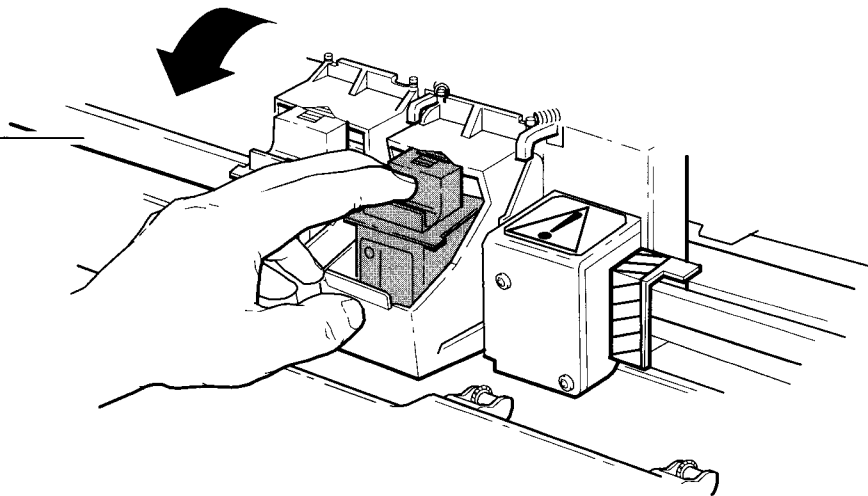
5 Insert a new pen into the empty pen slot.

6 Press down slightly and push the pen away from you until it snaps into the pen slot.

7 Repeat steps 3 through 8 to load the other pen.

8 When the "Load media to align pens" message displays, load either sheet or roll *paper.*

The plotter tests replaced pen(s) to make sure they work (this takes about a minute). If the plotter detects a problem, it prompts you to either replace or reseat the pen(s). You might also try cleaning the nozzle as described later in this chapter.

After the pens test properly, the plotter performs a pen alignment procedure. Media must be loaded for this procedure. If media is not already loaded, the plotter prompts you and waits for media to be loaded.

Do **not** open the window while the alignment is in process; otherwise the plotter will restart the alignment from the beginning.
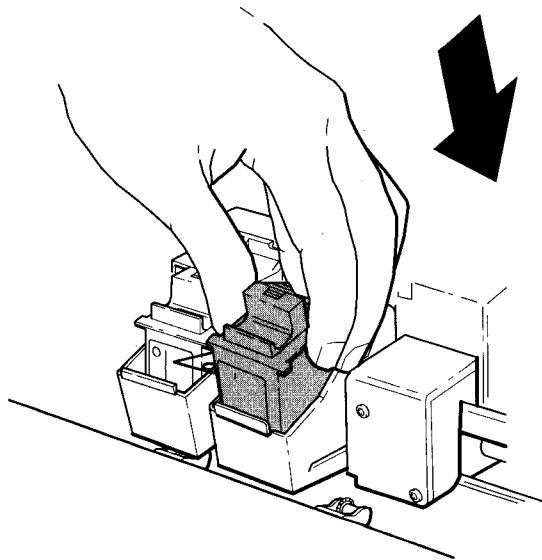
To reseat a pen

Remove it from its slot and insert it back in the slot. For pen removal and insertion instructions, refer to "To replace the pens" earlier in this chapter.

If, after reseating the pen(s), the plotter displays another message to reseat the pen(s), try once more. If reseating the pen(s) doesn't solve the problem, try cleaning the electrical contacts of the pen(s) as described in "To clean a pen." Otherwise, replace the pen(s).
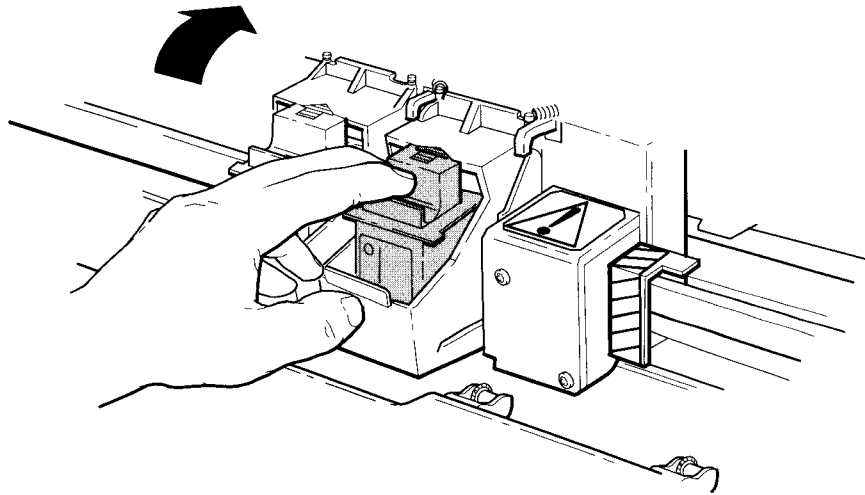
To clean a pen

1 Hold the pen by the all-plastic sides and wipe the electrical contacts gently with a nonpaper, lint-free cloth.

2 With a separate cloth, wipe the nozzle gently with a nonpaper, lint-free cloth. This prevents contaminating either the electrical contacts or the nozzle with ink.

Do not wipe the nozzle frequently or harshly. This may worsen any clogging problem with the nozzles.

Clean the electrical contacts only when you can see they are dusty or you have repeatedly (and unsuccessfully) tried to reseat a pen.

Clean the nozzle only under the following conditions:

• You suspect the nozzle is clogged (even new pens can have clogging problems).

• You are troubleshooting a plot quality problem, and reseating the pens didn't solve the problem.

3
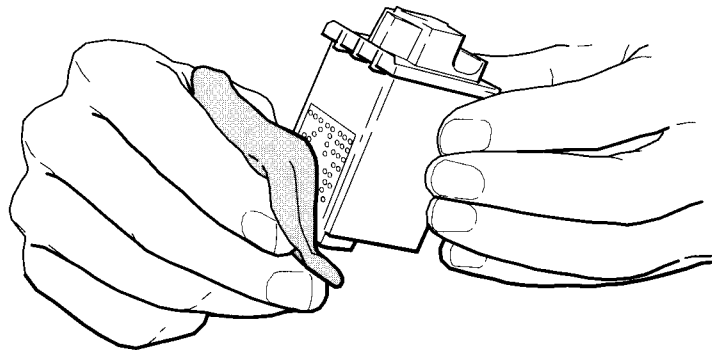
Managing your plots

Understanding queueing and nesting

The Plot Management menu helps you control the activity of plots in the queue. The following shows the *Plot mgmt* menu options.
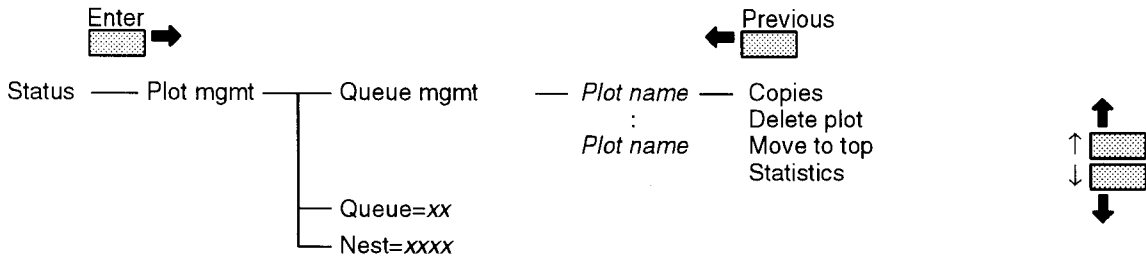
The plotter's queueing feature lets your plotter accumulate incoming plots in a list, or *queue*. After you place the plot file in the plotter's queue, you can change the order of plots in the queue, delete a plot from the queue, or change the number of copies the plotter makes. Nesting allows the plotter to place plots side-by-side to reduce the amount of wasted roll media (plots cannot be nested on sheet media).

This chapter also includes instructions for the main menu option *Pause next plot*.

Reducing media waste

Your plotter can rotate plots to save roll media. To do so, you must meet the following two requirements.

- You must turn on nesting (queueing must also be on).

- Your software must specify the plot size when the plot file is sent.

When both conditions are met, the plotter rotates A/A4- and C/A2-size plots on 24" rolls, and B/A3- and D/A1-size plots on 36" rolls.

To get the most use of your media, use the following features.

*   Use roll media and turn on queueing and nesting. (Refer to instructions later in this chapter for turning on these features.)
*   Set **Page format/Margins** to *Expand* (refer to chapter 4) and be sure that your software-specified plotting area plus margins fits within the page size you want.
*   Set **Page format/Size** to *Inked area* (refer to chapter 4).

Queueing

When you turn on queueing (Queue=On), you can send several plots to the plotter without waiting for each plot to finish before you send the next one. (The plotter plots the first drawing at the same time it is receiving the next one.)

The queue can hold up to 32 plots in the queue (depending on file size and available plotter memory). The plot currently plotting is in queue position 0. The next plot in the queue is at position 1, the following plot is at position 2, and so on. Once finished plotting, the plot at position 0 moves to position –1, the plot that was previously at position –1 moves to position –2, and so on.
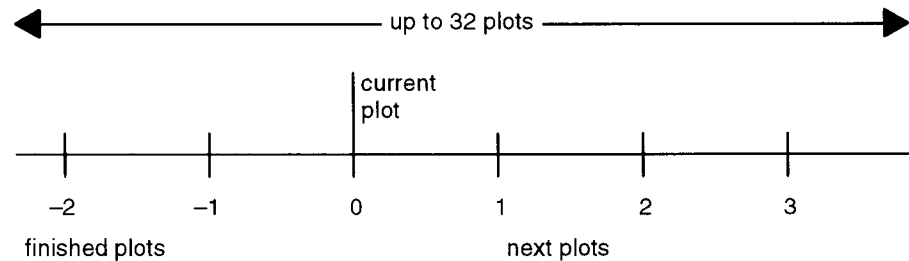
By default, the plotter assigns names to the plots in the queue. The names indicate how many thousands of vectors make up the plot. Note that the file size indicated on the plotter is not an indication of the amount of memory the plot requires. Refer to `Plot mgmt/Queue mgmt/Statistics` to learn memory use information.

Position in queue

1:92K Vectors

Number of vectors in the plot

Some applications let you give your plot a descriptive name, which it relays to the plotter. If your software supports this feature, the software filename displays rather than the plotter-assigned filename.

Nesting

The following shows some typical nesting patterns on 24" and 36" media rolls.
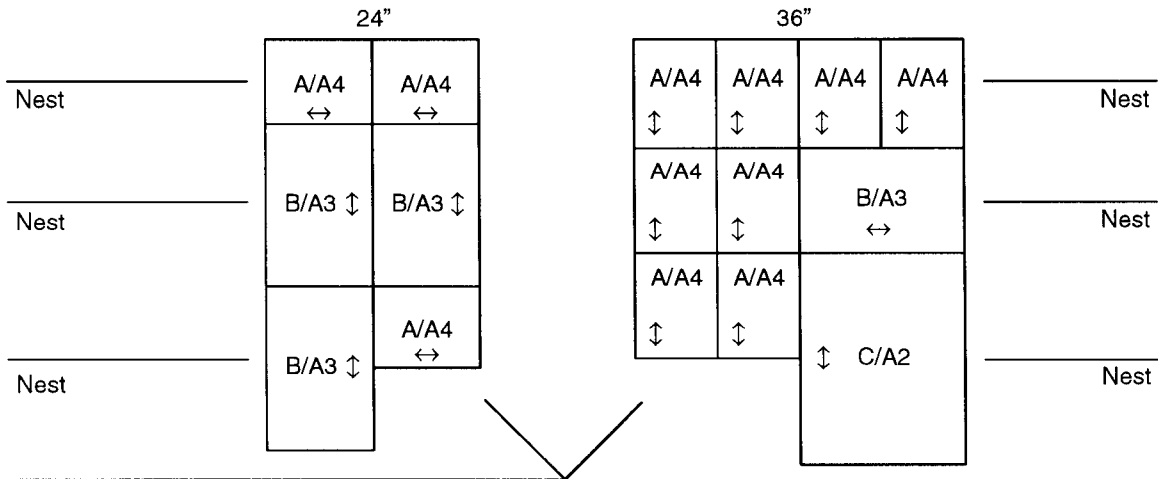
The plotter can nest horizontally only. It cannot place another plot in either of these places.

Nesting and page size interaction

To nest plots, the plotter must know the page size—that is, the plot size plus its margins—to determine the best orientation on the media. Your software must specify the page size to the plotter for nesting to occur. How the plotter uses that information also depends on the front panel `Page format/Size` setting.

When `Page format/Size` is set to *Inked area*, the plotter still determines the plot's orienation from the software-specified page size. However, the plotter only prints out the inked area of the plot plus margins.

If `Page format/Size` is set to a setting other than *Inked area*, the plotter adjusts the software-specified page size (plot plus margins) to the next-largest standard size page that can contain the plot plus its margins. That means a plot/margins combination that exceeds an A/A4-size page is adjusted to a B/A3-size plot.

If your software does not send page size information to the plotter, the plotter will not rotate plots. You can still nest the plots, but the plot will not be rotated to fit optimally.

Allowing for sufficient margins

Note that the plotter may not rotate plots as you expect; this could be due to your software. The page size of your plot is the plotting area plus its margins. If your plotter lets you adjust the plotting area, you must allow for sufficient margins.

For example, if you want to properly nest B/A3-size and D/A1-size plots on 36" roll media (and Page size/Margins=Expand), you must specify your plotting area so that it allows for 5 mm margins on the sides of the plot and 10 mm margins on the top and bottom *for each plot*. The following shows two B/A3-size plots properly nested on 36" roll media.

36" roll:
B/A3 and D/A1 plots

24" roll:
A/A4 and C/A2 plots

Allow for 10 mm on the top and bottom of each plot and 5 mm on each plot side.

Plotting area

Plotting area

10 mm

5 mm

10 mm

5 mm

5 mm each
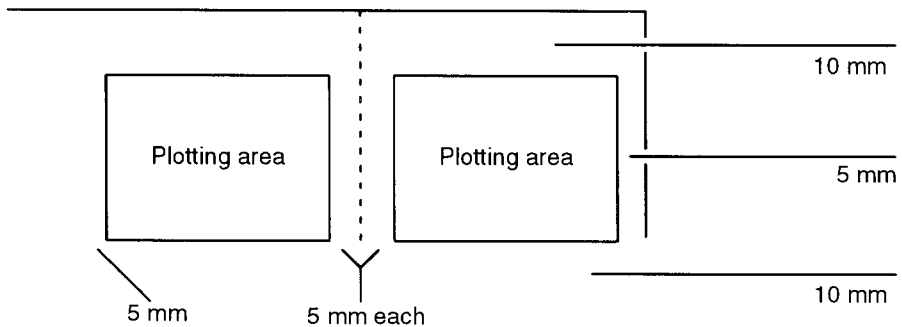
The same holds true for A/A4-size or C/A2-size plots on 24"roll media. If you do not allow for the proper margins when you specify your plotting area, your plot may not be rotated as you would expect because the plotter treats it as though it were the next largest standard size plot.

Selecting your nesting order

You determine how the plotter selects which plots to nest together. You can either have the plotter select the plots in the order in which they are sent to the queue or you can have the plotter select a combination of plots in the queue that makes up the best nest (that is, the combination saves the most media).

If the speed with which you receive your plots is most important, set nesting to *In order*; the plotter tries to nest plots in the order in which they are received. If you want to use the least amount of media, set nesting to *Optimal*; the plotter determines the combination of plots that saves the most media.

Using queueing and nesting

Turn on queueing when you want to nest plots. Turn on nesting especially when you are plotting several smaller plots on roll media.

Turn off queueing when you are plotting a long-axis plot. Note that turning off queueing does not turn off nesting; it only disables nesting for subsequent plots while queueing is off. When queueing is turned on again, the plotter will also begin nesting plots again. The following shows the interaction between the queueing and nesting features.

	Queue=On	Queue=Off[1]
Nest=Optimal or **Nest=In order**	The plotter accepts plots into the queue while plotting. Plots are cut after each nest.	The plotter accepts plots only when it is not plotting.
Nest=Off	The plotter accepts plots into the queue while plotting. Plots are individually plotted, then cut.	The plotter accepts plots only when it is not plotting. Plots are not nested.

1 If queueing is turned off while there are plots in the queue, remaining plots will be plotted and cut individually.

Making copies of plots

- To make one or more copies of a plot in the queue (it has not yet been plotted), use `Plot mgmt/Queue mgmt/Copies`. Refer to "To make copies of a plot" later in this chapter.

- To make one copy of a plot that has already been plotted but is still in the queue, use `Plot mgmt/Queue mgmt/Move to top`. Refer to "To change the order of plots in the queue" later in this chapter.

- To make more than one copy of a plot that has already been plotted but is still in the queue, use `Plot mgmt/Queue mgmt/Copies` and `Plot mgmt/Queue mgmt/Move to top` (in that order).

Note that the display will show the total number of plots the plotter will create. `Copies=2` creates a total of two plots (not one original and two copies).

To make copies of a plot

1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.

2 Scroll to Queue mgmt and press **Enter**.

3 Press the scrolling buttons until the plot for which you want more copies displays. Then press **Enter**. The display shows the total number of plots the plotter will create.

4 Use the scrolling buttons to increase the number of copies (up to 99) or decrease the number. The setting you specify in this option overrides any value set by your software.

```
        STATUS
                              Enter
 Ready to plot
```

```
         MENUS
                              Enter
 Plot mgmt→
```

```
       PLOT MGMT
                              Enter
 Queue mgmt→
```

```
       QUEUE MGMT
                              Enter
     5:36K Vectors→
```

```
     5:36K Vectors
                              Enter
       Copies=0→
```

```
        COPIES
                           ↑       Enter
 0*                        ↓
```
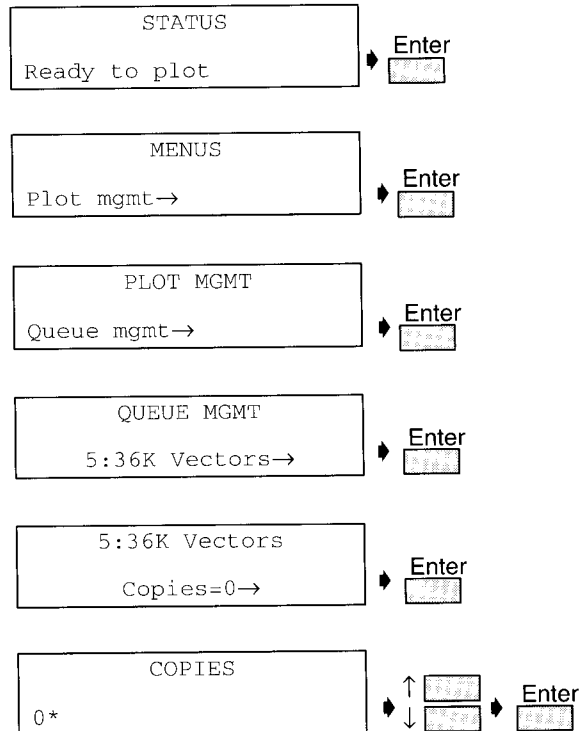
To delete a plot from the queue

1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.

2 Scroll to Queue mgmt and press **Enter**.

3 Press the scrolling buttons until the plot you want to delete displays. Then press **Enter**.

4 Scroll to Delete and press **Enter**. The plotter removes the file from the queue.

If the plot is currently plotting (the queue position is 0), press **Cancel** to stop the plot. Then you can delete it.
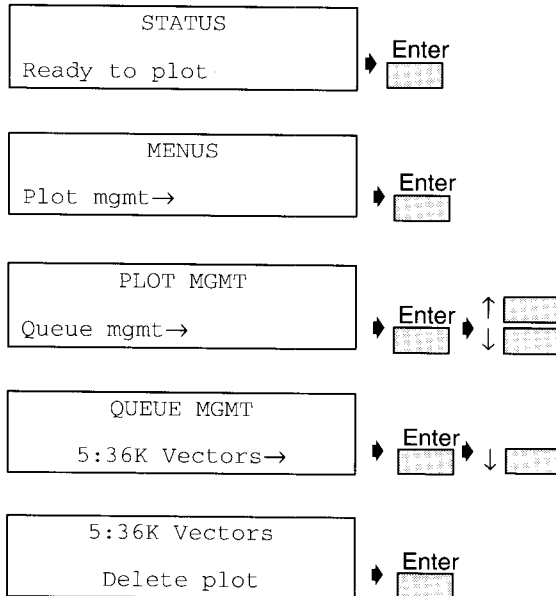
```
┌─────────────────────────────┐
│          STATUS             │        Enter
│  Ready to plot              │  ▶  ▢
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│          MENUS              │        Enter
│  Plot mgmt→                 │  ▶  ▢
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│        PLOT MGMT            │        Enter    ↑ ▢
│  Queue mgmt→                │  ▶  ▢   ▶  ↓ ▢
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│        QUEUE MGMT           │        Enter
│    5:36K Vectors→           │  ▶  ▢   ▶ ↓ ▢
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│    5:36K Vectors            │        Enter
│      Delete plot            │  ▶  ▢
└─────────────────────────────┘
```

To change the order of plots in the queue

1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.

2 Scroll to Queue mgmt and press **Enter**.

3 Press the scrolling buttons until the plot you want to move displays. Then press **Enter**.

4 Scroll to Move to top and press **Enter**. The plotter moves the plot so that it is the next to be plotted.

If you are using roll media and either nesting is set to *optimal* or if you don't want this plot to be nested with other plots, turn off nesting first.

```
          STATUS
                              Enter
  Ready to plot
```

```
          MENUS
                              Enter
  Plot mgmt→
```

```
        PLOT MGMT
                              Enter    ↑
  Queue mgmt→                          ↓
```

```
        QUEUE MGMT
                              Enter  ↑      ↑
    5:36K Vectors→
```

```
     5:36K Vectors
                              Enter
     Move to top
```

```
        QUEUE MGMT
    1:36K Vectors→
```
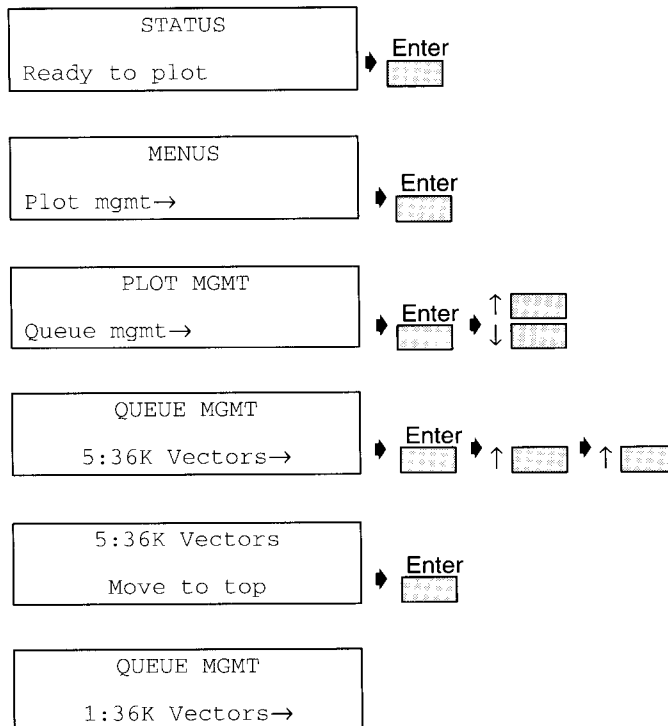
To get information about plots in the queue

1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.

2 Scroll to Queue mgmt and press **Enter**.

3 Scroll to Statistics and press **Enter**.

The display shows you the length and width of the plot (in millimeters) and the amount of memory used by the plot file. When nesting is on and your software does not specify the page size, the length and width specified here show the plotting area of the physical page in the plotter.

```
        STATUS
                              Enter
Ready to plot
```

```
        MENUS
                              Enter
Plot mgmt→
```

```
      PLOT MGMT
                              Enter    ↑
Queue mgmt→                            ↓
```

```
      QUEUE MGMT
                              Enter    ↑
   5:36K Vectors→
```

```
   5:36K Vectors
                              Enter
Statistics→
```

```
      STATISTICS
                                   ↑
Width=594mm                        ↓
     Length=841mm
        RAM used=400 KB
```
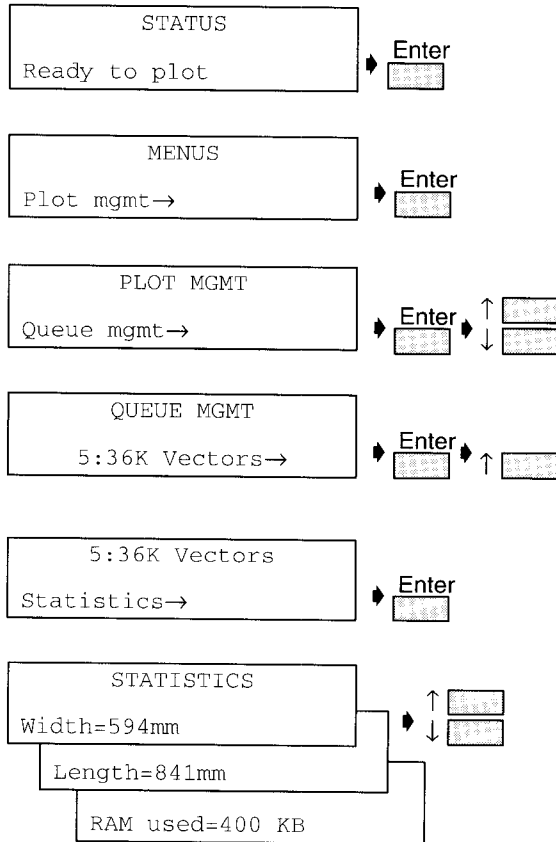
To turn on/off queueing

1 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.

2 Press ↑ to scroll to Queue=(*On* or *Off*).

3 Press **Enter**, then a scroll to the queueing status you want and press **Enter**; otherwise, press **Previous** to leave the setting as it is.

```
┌─────────────────────────────┐
│           STATUS            │          Enter
│                             │  ▶ ▢
│  Ready to plot              │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│           MENUS             │          Enter
│                             │  ▶ ▢  ▶↑ ▢
│  Plot mgmt→                 │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│         PLOT MGMT           │          Enter
│                             │  ▶ ▢
│  Queue=On→                  │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│           QUEUE             │        ↑ ▢   Enter
│                             │  ▶ ↓ ▢  ▶ ▢
│  On*                        │
│     ┌───────────────────────┤
│     │  Off                  │
└─────┴───────────────────────┘
```
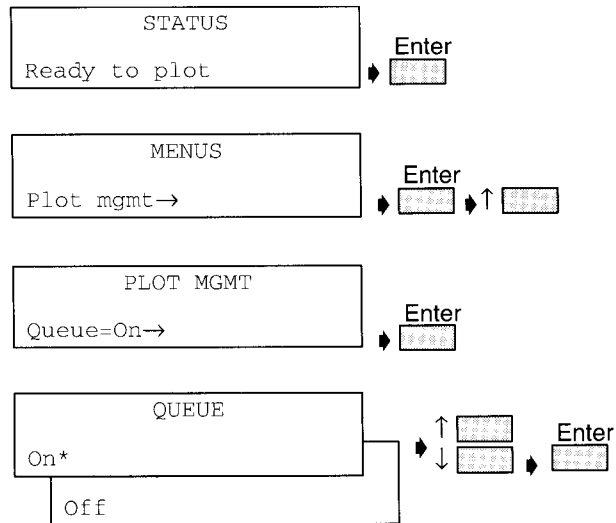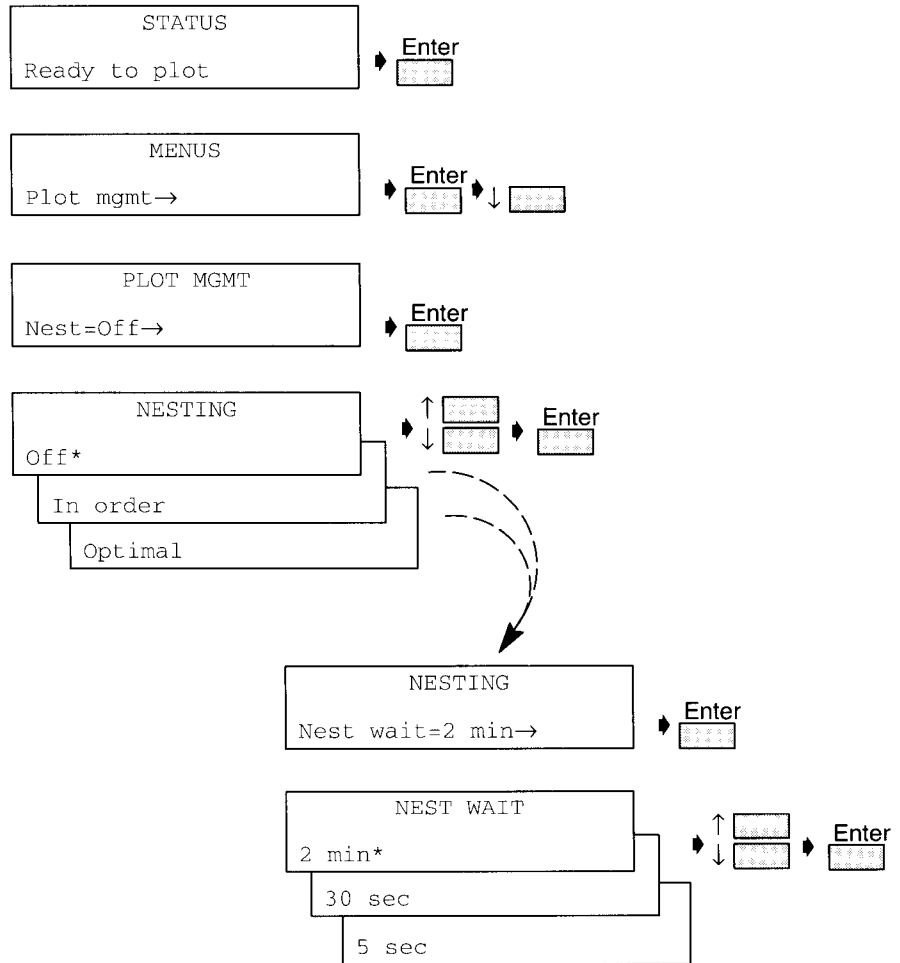
To turn on/off nesting

1 Load roll media.

2 From the Status screen, press **Enter**. When Plot mgmt displays, press **Enter**.

3 Scroll to Nest=(*Off*, *In order*, or *Optimal*). If you want to change the setting, press **Enter**. (To leave the setting as it is, press **Previous** and continue with your plotting.)

4 Use either scrolling button to change the setting, then press **Enter**.

5 If a nesting mode other than *Off* was selected, the plotter displays Nest wait=*n xxx*. This is the current amount of time the plotter will wait for another plot before plotting the nest already in the queue. Use the following steps to change the wait time, or press **Previous** to make continue without making a change.

   a Press **Enter** at the Nest wait=*n xxx* prompt.

   b Use the scrolling buttons to display the wait time you want and press **Enter**.

   Queuing must be on for the nesting feature to work. Refer to "To turn on/off queueing" earlier in this chapter.

Off | (Default.) The plotter will not nest plots; it plots each drawing and cuts it immediately.

In order | When possible, the plotter nests sequential plots in the queue.

Optimal | The plotter scans the plots in the queue and plots them so that the least amount of media is used.

```
        STATUS
 Ready to plot          ▶ Enter
```

```
        MENUS
 Plot mgmt→             ▶ Enter ▶↓
```

```
       PLOT MGMT
 Nest=Off→              ▶ Enter
```

```
       NESTING
 Off*                   ▶ ↑↓ ▶ Enter
   In order
      Optimal
```

```
       NESTING
 Nest wait=2 min→       ▶ Enter
```

```
       NEST WAIT
 2 min*                 ▶ ↑↓ ▶ Enter
   30 sec
      5 sec
```

To pause between plots in the queue

From the Status screen, press **Enter**. Press ↓ to scroll to `Pause next plot`, then press **Enter**. The plotter returns to the Status screen and displays the message `Pause pending`. When the plotter finishes plotting the current plot, it stops and displays the Status screen and the message `Plotter paused`.

```
        STATUS

Ready to plot
```
Enter

```
        MENUS

Pause next plot
```
Enter

```
        STATUS

Pause pending
```
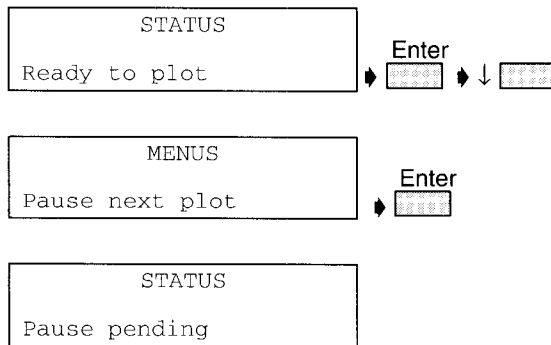
Use this feature when you want to change either the type of media you are using or the pens.

To resume plotting, press **Enter** at the Status screen. Press ↓ to scroll to `Continue plotting`, then press **Enter**. The plotter begins plotting the next plot in the queue.
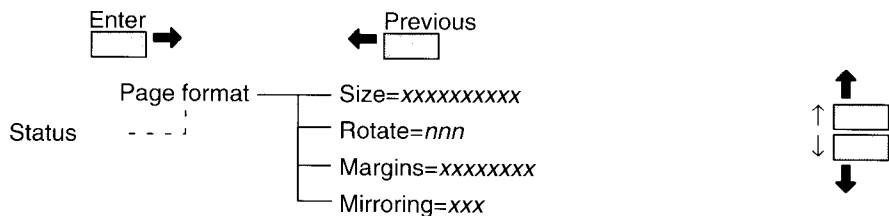
```
        STATUS

Paused
```
Enter

```
        MENUS

Continue plotting
```
Enter

4
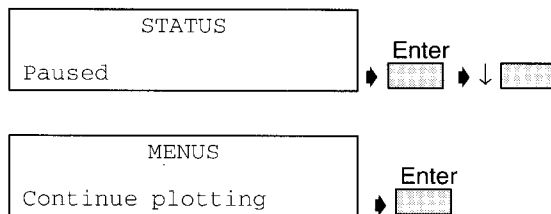
Defining your page format

Defining your page format

The Page format menu helps you specify how the plot appears on the page. The following shows the *Page format* menu options.

Enter →   ← Previous

```
                Page format ——┬—— Size=xxxxxxxxxx
     Status        - - - ┘    ├—— Rotate=nnn
                             ├—— Margins=xxxxxxxx
                             └—— Mirroring=xxx
```

With the exception of mirroring, you must specify your page format options *before* placing your plot in the plotter's queue. For example, once you place a plot file in the queue, you cannot change its rotation.

Page size and roll media

The plotter determines the size of the plot at the time it is received.

If your software specifies your page size and your roll media can accomodate it, your plot will be the software-specified size. Your software setting always overrides the front panel setting. If the roll media is smaller than the specified page size, the plot may be clipped; that is, the plotter will not be able to plot data near the edges of the plot.

If your software doesn't specify the page size, use the front panel *Size* option to set the plotting boundary. If the front panel specifies a plot size larger than the physical page loaded, the plotter may clip the plot on the page.

Plotter models with a code revision of 3.1 or higher (check the **Utilities/Statistics** menu) include an option, *Inked area*, that lets the plotter print only the used area of the plot. Refer to chapter 3 to learn how *Inked area* and nesting interact.

Getting the most from your roll media

Besides nesting and setting the page size, you can further reduce the amount of media waste by expanding the plotting area of the page. The two side margins are 5.0 mm. By default, the plotter uses margins of 17 mm on the leading and trailing edges of the media. By reducing the margins to 10 mm on the leading and trailing edges of the media, you can use 14 mm more plotting area along that axis. Refer to "To change the page margins" later in this chapter.
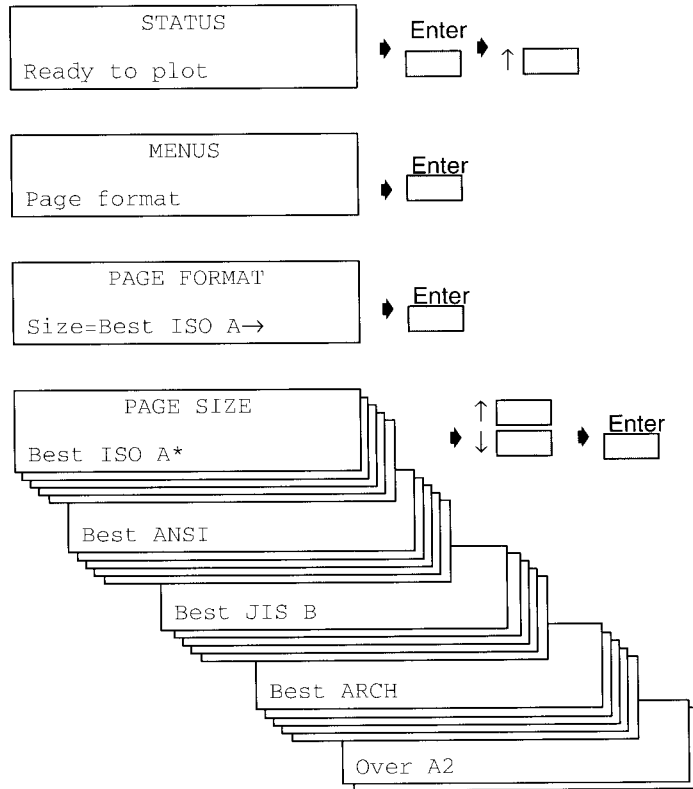
Sheet media uses normal margins only.
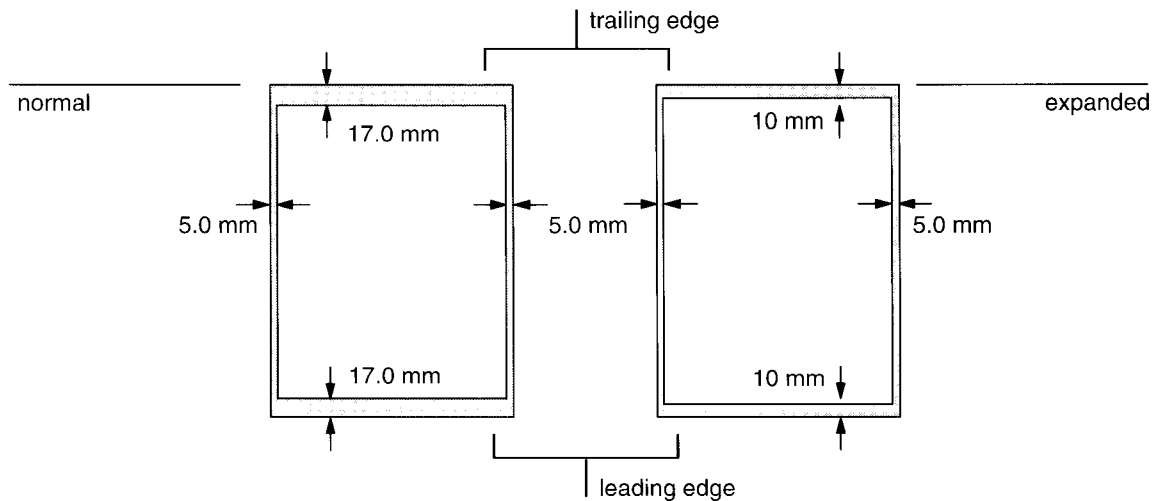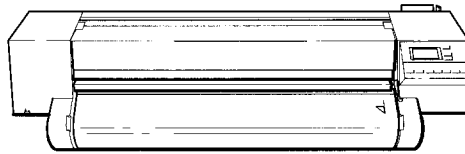
To specify the page size

1 From the Status screen, press **Enter**. Press ↑ to scroll to Page format, then press **Enter**. The current page size setting displays.

2 Press **Enter** and use the scrolling buttons to review the different page size options; the current setting is marked with an asterisk (*).

3 When the page size you want displays, press **Enter**.

The available standard page size settings are as follows.

• Best ISO A (default for plotters with code revisions less than 3.1) and ISO sizes A4–A1 or A0 (depending on your plotter model).

• Best ANSI and ANSI sizes A–D or E (depending on your plotter model).

• Best JIS B and JIS sizes B4–B2 or B1 (depending on your plotter model).

• Best ARCH and architectural sizes A–E1.

• Oversize A2 and A1.

• Inked area This option is available on plotters with a code revision of 3.1 or higher (refer to **Utilities/Statistics**). On these plotters, this is the default.

The factory-set page size is *Best ISO A*. The largest page size you can specify or load is determined by the model of your plotter. The word "Best" indicates that, for nonstandard-sized plots, the plotter will choose the smallest page size that will hold the defined plot. For example, if the plot file indicates a size between ISO A and ISO B, the plotter chooses ISO B as the page size and plots the drawing.
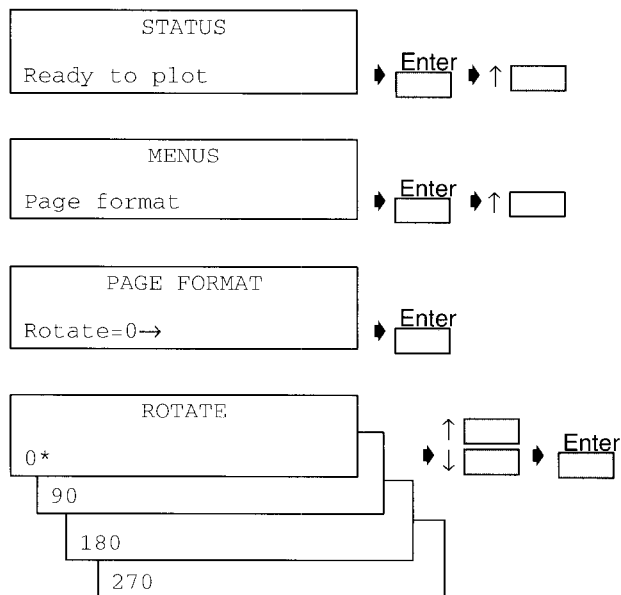
```
          STATUS                    Enter
                                ▶   ┌──────┐  ▶  ↑ ┌─────┐
   Ready to plot                    └──────┘       └─────┘
```

```
          MENUS                     Enter
                                ▶   ┌──────┐
   Page format                      └──────┘
```

```
       PAGE FORMAT                  Enter
                                ▶   ┌──────┐
   Size=Best ISO A→                 └──────┘
```

```
          PAGE SIZE                 ↑ ┌──────┐      Enter
                                ▶  ↓ └──────┘   ▶  ┌──────┐
   Best ISO A*                       ┌──────┐      └──────┘

             Best ANSI

                Best JIS B

                   Best ARCH

                      Over A2
```

To rotate a plot

1 From the Status screen, press **Enter**. Press ↑ to scroll to Page format, then press **Enter**.

2 Scroll to Rotate and press **Enter**. The current rotation angle displays.

3 Press **Enter**, then use the scrolling buttons until the rotation angle you want displays, then press **Enter** to set it.

You can specify a rotation angle of 0 (default), 90, 180, or 270 degrees. The new angle of rotation affects the *next* plot sent to the plotter, not the one currently plotting, if any. This setting stays in effect until you change it or turn off the plotter.

The plotter adds the rotation setting to the rotation angle you specify in your software. For example, if your software specifies 180 degrees rotation, and you set Page format/Rotate to 90, your plot's final rotation will be 270 degrees.

Due to rotate buffer memory limitations, rasterized drawings cannot be rotated.

```
┌──────────────────────────────┐
│            STATUS            │
│                              │
│  Ready to plot               │      ▶  Enter  ▶ ↑ ☐
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│            MENUS             │
│                              │
│  Page format                 │      ▶  Enter  ▶ ↑ ☐
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│         PAGE FORMAT          │
│                              │
│  Rotate=0→                   │      ▶  Enter
└──────────────────────────────┘
```

```
┌──────────────────────────────┐
│            ROTATE            │
│                              │
│  0*                          │      ▶ ↑↓  ▶ Enter
    ┌──────────────────────────┐
    │  90                      │
        ┌──────────────────────┐
        │  180                 │
            ┌──────────────────┐
            │  270             │
            └──────────────────┘
```

To change the page margins

1 From the Status screen, press **Enter**. Press ↑ to scroll to Page format, then press **Enter**.

2 Scroll to Margins and press **Enter**. The current setting displays (either *Expand* or *Normal*).

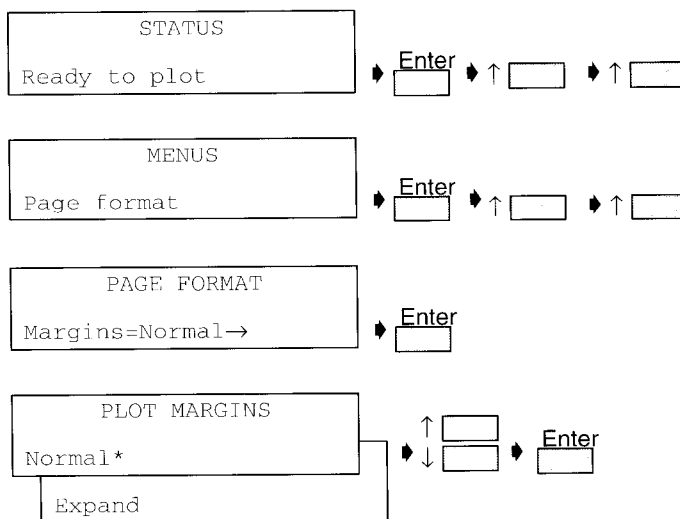3 Press **Enter**, then use the scrolling buttons to change your selection and press **Enter**.

Normal   (Default.) Leading and trailing edge margins are 17 mm.

Expanded   Expands the plotting area by reducing the leading and trailing edge margins to 10 mm.

You can change the margins on roll media only. For sheet media, the normal margins apply. Side margins for roll and sheet media are always 5 mm.

```
        STATUS
                            ┌────┐    ┌───┐    ┌───┐
  Ready to plot       ▸ Enter  ▸ ↑ └───┘  ▸ ↑ └───┘
                            └────┘
```

```
        MENUS
                            ┌────┐    ┌───┐    ┌───┐
  Page format         ▸ Enter  ▸ ↑ └───┘  ▸ ↑ └───┘
                            └────┘
```

```
     PAGE FORMAT
                            ┌────┐
  Margins=Normal→     ▸ Enter
                            └────┘
```

```
     PLOT MARGINS
                         ↑ ┌───┐         ┌────┐
  Normal*            ▸ ↓ └───┘      ▸ Enter
                                            └────┘
      Expand
```

To mirror a plot

1 From the Status screen, press **Enter**. Press ↑ to scroll to Page format, then press **Enter**.

2 Scroll to Mirroring and press **Enter**. The current setting displays (either *Off* or *On*).

3 Press **Enter**, then use the scrolling buttons to change your selection and press **Enter**.

Do not change the setting during a plot, the change becomes effective immediately; that is, if you change the setting in the middle of the current plot, the remaining data is plotted in the mirrored orientation. The Mirroring setting stays in effect until you change it or turn off the machine. The default setting is "Off."

```
         STATUS
  Ready to plot
```
▸ Enter ▸ ↑ ☐

```
         MENUS
  Page format
```
▸ Enter ▸ ↓ ☐

```
      PAGE FORMAT
  Mirroring=Off→
```
▸ Enter

```
        ROTATE
  Off*
        On
```
▸ ↑ ☐ / ↓ ☐ ▸ Enter
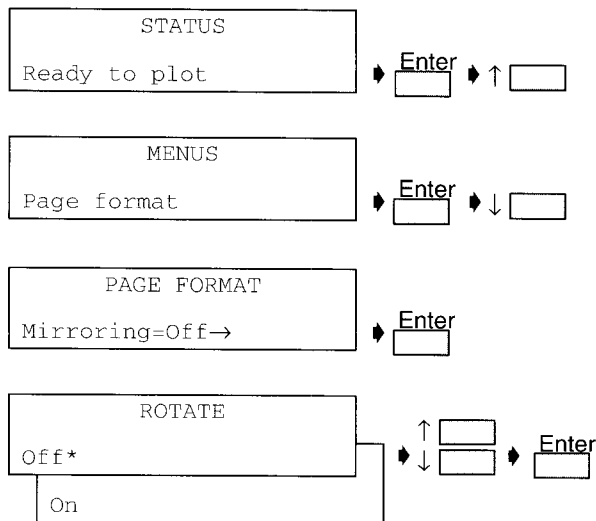
Defining pen settings

Defining pen settings

The Pen settings menu lets you define the width and shadings of the plotter's "logical" pens and indicate how you want overlapping lines to be plotted.

```
Enter                         Previous
[___]➡                      ⬅[___]

        Pen settings ─┬─ Palette=xxxxxxxx          ⬆
Status      - - - ┘   ├─ Define palette       ↑[___]
                      └─ Merge control=xx      ↓[___]
                                                    ⬇
```
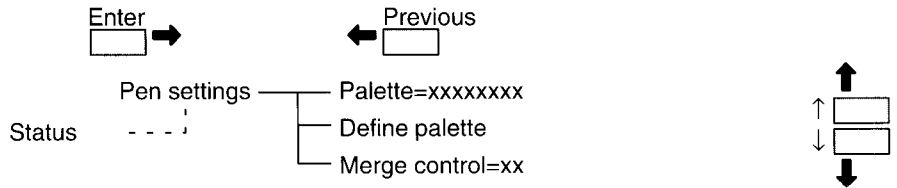
Using pen palettes

The plotter has three available palettes of pens. The factory palette cannot be changed. You can, however, change the line width and shading settings for each pen on the remaining two palettes (called *palette A* and *palette B*). Each palette contains 16 logical pens. Initially, all three palettes are identical.

To use a palette other than the factory palette, define the widths and shadings for the pens you will be using, then load the palette for use. Refer to "To define a pen palette" and "To load a pen palette" later in this chapter.

When loading a pen palette for use, you can choose to let your software set all pen parameters. That is, the plotter will use your software specifications for pen widths and shadings rather than any of the internal palettes.

To load a pen palette

1 From the Status screen, press **Enter**. Press ↑ twice to scroll to `Pen settings`, then press **Enter**. The currently loaded palette displays.

2 Press **Enter** to review the different palette options.

3 When the palette you want to load displays, press **Enter**.

Initially, the factory, A, and B palettes are identical. To change a palette, refer to "To define a pen palette" later in this chapter.

```
        STATUS
Ready to plot
```
▸ Enter ▸ ↑ ▸ ↑

```
        MENUS
Pen settings
```
▸ Enter

```
     PEN SETTINGS
Palette=Software→
```
▸ Enter

```
    CURRENT PALETTE
Software*
    Factory
     Palette A
      Palette B
```
▸ ↑↓ ▸ Enter
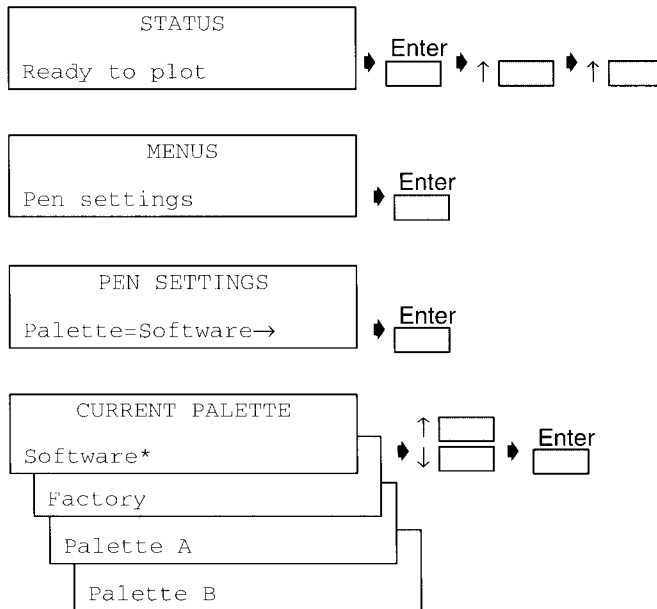
To define a pen palette

1 From the Status screen, press **Enter.** Press ↑ twice to scroll to Pen settings, then press **Enter.**

2 Scroll to Define palette and press **Enter.**

3 When the palette you want to define displays, press **Enter.** You can define only palette A or B; the factory palette is only for viewing.

4 Select a pen number to define for this palette and press **Enter.** The front panel displays the current pen width setting.

5 Use the following to change the width for this pen.

   a Press **Enter.**

   b Use the scrolling buttons to select a new width for this pen and press **Enter.**

6 Use the following to change the shading percentage for this pen.

   a Press ↑.

   b Press **Enter.**

   c Use the scrolling buttons to select a new shading percentage for this pen and press **Enter.**

Initially, the palette A and B are the same as the factory palette.

Width The default pen width is 0.35 mm. The other pen width specifications are equivalent to standard physical pen widths. (If you want a one-pixel line, select a width of 0.13 mm.)

Shading You can specify shadings in increments of 10% (100, 90, 80, etc.). The default shading percentage for pen 0 is 0%; for all other pens, the default shading is 100%.

Once you have defined a palette, refer to "To load a pen palette" earlier in this chapter.

```
        STATUS

Ready to plot
```
Enter ↑ ↑

```
        MENUS

Pen settings
```
Enter ↑

```
     PEN SETTINGS

Define palette→
```
Enter

```
    DEFINE PALETTE

Palette A
```
↑ ↓ Enter

```
     PALETTE A

Pen number 0→
```
↑ ↓ Enter

```
    PEN NUMBER 0

Width=0.35mm→
```
Enter ↑ ↓ Enter ↑

```
    PEN NUMBER 0

Shade=0%→
```
Enter ↑ ↓ Enter
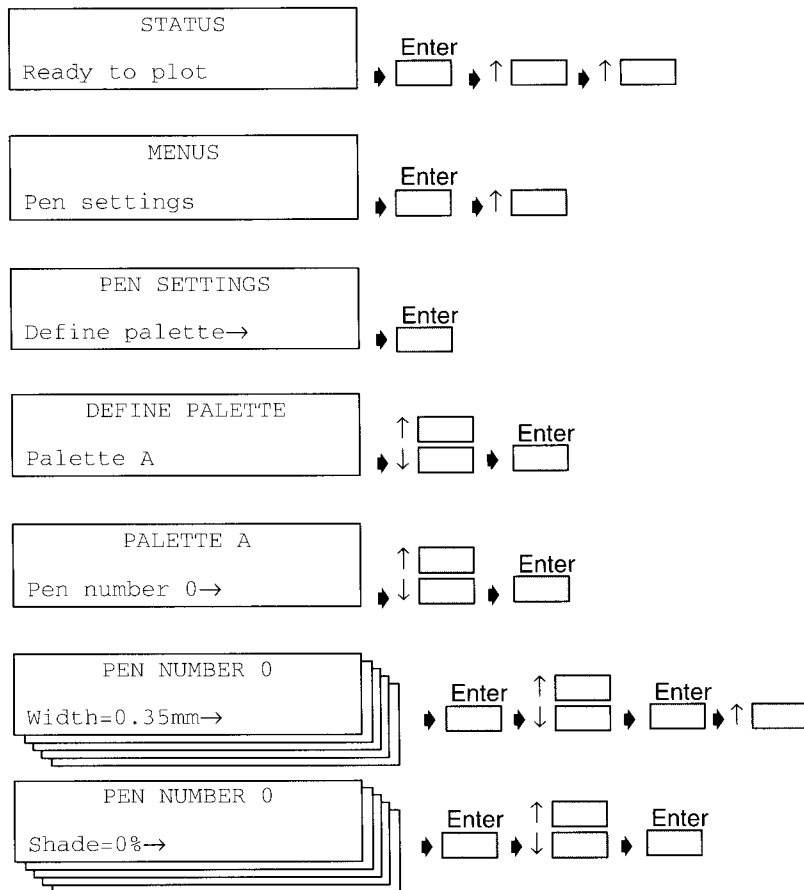
To control the appearance of overlapping lines

1 From the Status screen, press **Enter**. Press ↑ twice to scroll to Pen settings, then press **Enter**.

2 Scroll to Merge control and press **Enter**. The front panel displays the current setting.

3 Press **Enter**, then press either scrolling button to display the setting you want and press **Enter**.

Merge control=Off
(Default.) The last line
overlaps previous lines.

Merge control=On
Overlapping lines and
area fills are merged.

```
        STATUS
Ready to plot
```
Enter
↑ ↑

```
        MENUS
Pen settings
```
Enter
↓

```
      PEN SETTINGS
Merge control=Off→
```
Enter

```
     MERGE CONTROL
Off*
   On
```
↑
↓   Enter

6
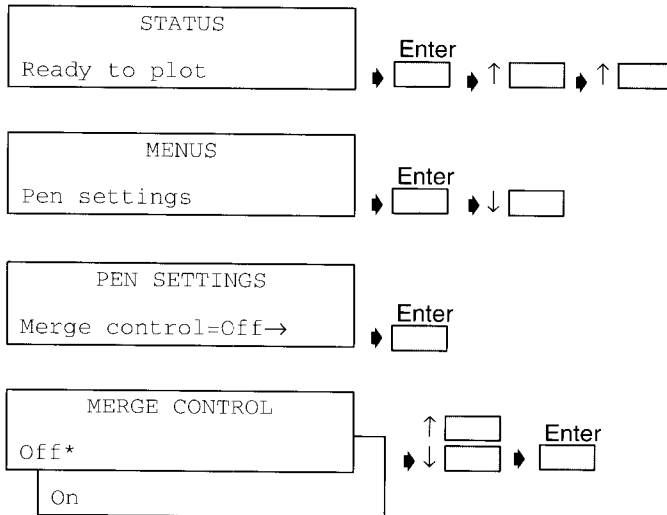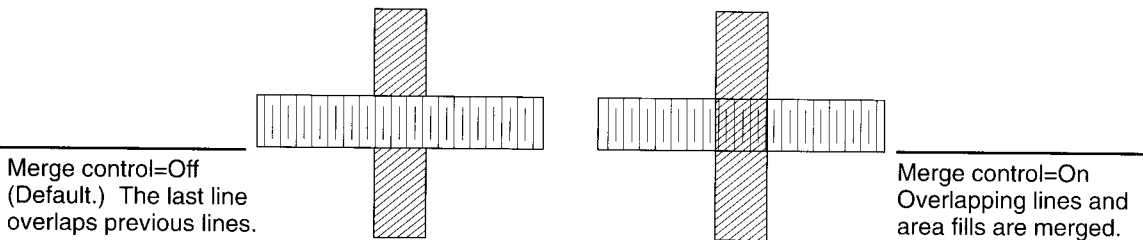
Configuring your plotter

Configuring your plotter

The Plotter setup menu helps you set the conditions under which your plotter operates.
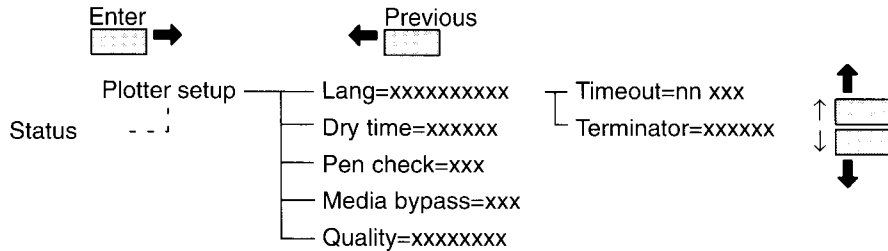
Ensuring quality plots

The Quality feature of the plotter lets you determine the priority for setting print quality. Some software specifies the highest quality setting without allowing you to change it. This means that your software might not plot in draft or final modes—only in enhanced. This feature gives you greater flexibility by letting you determine whether the software or the plotter front-panel setting sets the print quality.

Dry time helps by letting the ink on the plot dry before the plotter cuts the page (from roll media) and drops it into the bin. Not only will this keep the plot from smearing, but it also keeps the other plots in the bin clean. If you are doing a series of draft plots and are not concerned about the cleanliness of the plots, you can set the ink drying time to *None*.

Pen check ensures that all of the nozzles on the pens are working at the beginning of each plot and that the pens are seated properly in the pen carriage slots. If the plotter detects a problem, it displays an appropriate message to let you know how to correct the problem. Refer also to chapter 10, "Troubleshooting and maintenance" for solutions to plotting problems.

Letting the plotter help you load poorly cut media

Persistent difficulty loading media might indicate poorly cut media. That is, the media width on the leading edge is different from the width of the trailing edge. When you properly load the leading edge of poorly cut media along the perforated line on the platen, you may notice the trailing edge displaces from the line by a small distance and the plotter will not accept the media. The plotter can accept poorly cut media that displaces less than 1.0 cm from the perforated line.

The Media bypass feature helps you compensate for the shape of some poorly cut media. Media that is cut properly should not need the help of the Media bypass feature. In fact, using this feature for properly cut media lets you load it crookedly, possibly skewing your plot on the page.

To set a graphics language mode

1 From the Status screen, press **Enter**. Press ↑ three times to scroll to Plotter setup, then press **Enter**. The currently selected language mode displays.

2 Press **Enter**, then a scrolling button to review the graphic language options.

3 When the language you want the plotter to recognize displays, press **Enter**.

4 *If you select "7586, HP-GL/2"*, the plotter displays two more menus for you to confirm or change.

   a The plotter displays the current timeout setting. Press **Enter** and use the scrolling buttons until the timeout setting you want displays and press **Enter**.

   b The plotter displays the current file terminator set. The *only* time you should need to change from the "normal" terminator set to the "special" set is when you are using an obsolete HP 7586 driver that does not end files properly. In this instance, your plot may be incomplete.

7586, HP-GL/2   (Default and recommended setting.) The plotter accepts either HP-GL/2 graphics instructions, or HP-GL graphics instructions written for the obsolete HP 7586 pen plotter. Use this setting, also, when sending raster data.

After selecting *7586, HP-GL/2* as the graphics language mode, the plotter displays the timeout setting. This is for software that supports the obsolete HP 7586 pen plotter but does not included an end-of-file instruction (most software packages do). The default timeout setting is 2 minutes.

HP-GL/2   The plotter accepts HP-GL/2 graphics instructions only.

If you encounter problems with your software (for example, nothing is plotted or plotting occurs in only one quadrant of the page), then change the graphics language setting and resend your plots.
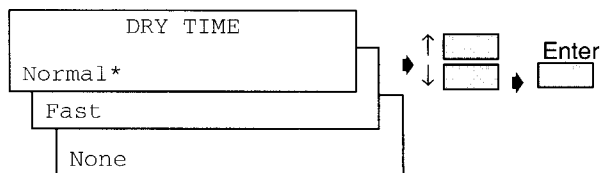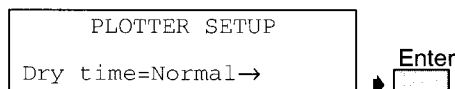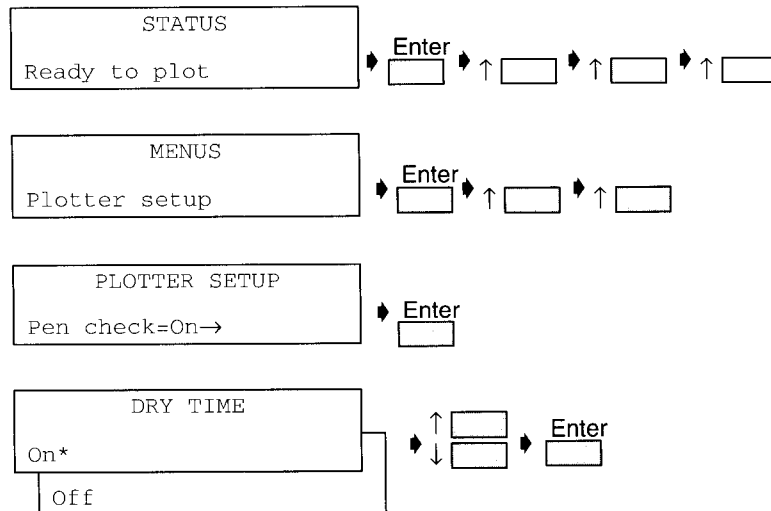
```
        STATUS                    Enter
 Ready to plot         ▸ ▭  ▸↑▭  ▸↑▭  ▸↑▭
```

```
        MENUS                     Enter
 Plotter setup         ▸ ▭
```

```
    PLOTTER  SETUP                Enter
 Lang=7586, HP-GL/2→   ▸ ▭
```

```
   GRAPHICS  LANGUAGE            ↑▭        Enter
 7586, HP-GL/2*→           ▸↓▭      ▸ ▭
      HP-GL/2
```

```
      7586,  HP-GL/2              Enter
 Timeout=2 min         ▸ ▭
```

```
        TIMEOUT               ↑▭        Enter
 2 min*                    ▸↓▭      ▸ ▭
```

```
      7586,  HP-GL/2              Enter
 Terminator=Normal     ▸ ▭
```

```
      TERMINATOR             ↑▭        Enter
 Normal* .                 ▸↓▭      ▸ ▭
        Special
```
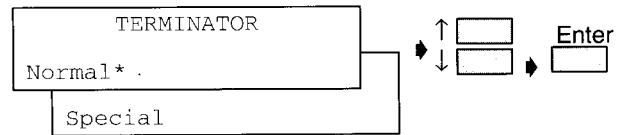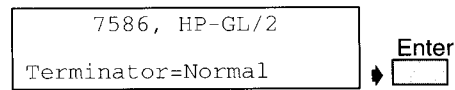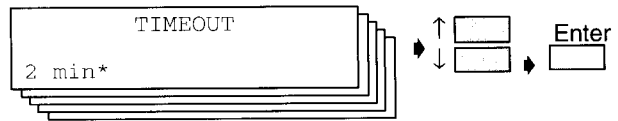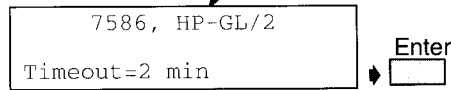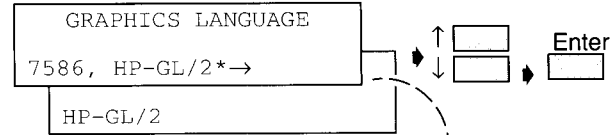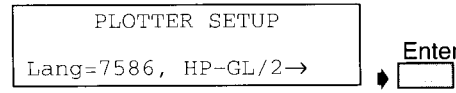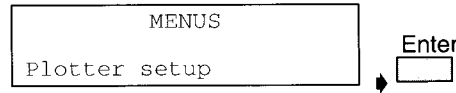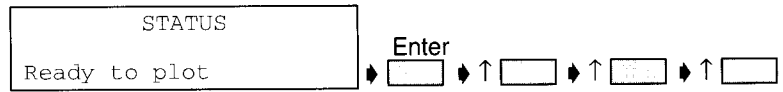
To dry the plot before cutting

1 From the Status screen, press **Enter**. Press ↑ three times to scroll to Plotter setup, then press **Enter**.

2 Press ↑ to display the current Dry time setting and press **Enter**.

3 Use the scrolling buttons to review the settings (*Normal*, *Fast*, and *None*), then press **Enter** when the setting you want displays.

	Ink drying times (in seconds)			
	Normal		**Fast**	
Media type	**Draft**	**Final/Enhanced**	**Draft**	**Final/Enhanced**
Paper	15	70	15	40
Transl/Vel	45	240	30	120
Film	240	240	120	120

```
        STATUS                    Enter
Ready to plot              ▸ [    ] ▸ ↑[    ] ▸ ↑[    ] ▸ ↑[    ]
```

```
        MENUS                     Enter
Plotter setup              ▸ [    ] ▸ ↑[    ]
```

```
     PLOTTER SETUP                Enter
Dry time=Normal→           ▸ [    ]
```

```
        DRY TIME                  ↑[    ]      Enter
Normal*                    ▸ ↓[    ] ▸ [    ]
    Fast
        None
```

6-6

To turn on/turn off pen checking

1 From the Status screen, press **Enter**. Press ↑ three times to scroll to Plotter setup, then press **Enter**.

2 Press **Enter**, then press either scrolling button twice to display the current Pen check setting (either *On* or *Off*).

3 Press **Enter**, then press either scrolling button to change the setting and press **Enter**.

On   (Default.) The plotter checks the pens before and after every plot to make sure the pens are seated properly in the pen carriage slots and that all of the nozzles are working.

Off   The plotter does not check the pen nozzles or pen carriage slots.

```
┌─────────────────────────┐
│          STATUS         │      Enter
│                         │ ▸ ┌──┐ ▸ ↑ ┌───┐ ▸ ↑ ┌───┐ ▸ ↑ ┌───┐
│     Ready to plot       │   └──┘       └───┘       └───┘       └───┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│          MENUS          │      Enter
│                         │ ▸ ┌──┐ ▸ ↑ ┌───┐ ▸ ↑ ┌───┐
│     Plotter setup       │   └──┘       └───┘       └───┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│      PLOTTER SETUP      │   ▸ Enter
│                         │     ┌──┐
│     Pen check=On→       │     └──┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│        DRY TIME         │       ↑ ┌──┐
│                         │  ▸    ┌─┤ ├── ▸ Enter
│ On*                     │       ↓ └──┘      ┌──┐
│    ┌────────────────────┤                   └──┘
│    │ Off                │
└────┴────────────────────┘
```

To compensate for poorly cut media

1 From the Status screen, press **Enter**. Press ↑ three times to scroll to Plotter setup, then press **Enter**.

2 Press **Enter**, then press ↓ to display the current Media bypass setting (either *On* or *Off*).

3 Press **Enter**, then press either scrolling button to change the setting and press **Enter**.

Off   (Default.) The plotter does not accept poorly cut media with a displacement more than 0.5 cm from the perforated line on the plotter's platen.

On   The plotter can accept poorly cut media that displaces up to 1.0 cm from the perforated line on the plotter's platen.

This setting is not saved when you turn off the plotter; the next time you turn on the plotter, the bypass setting is *off*.
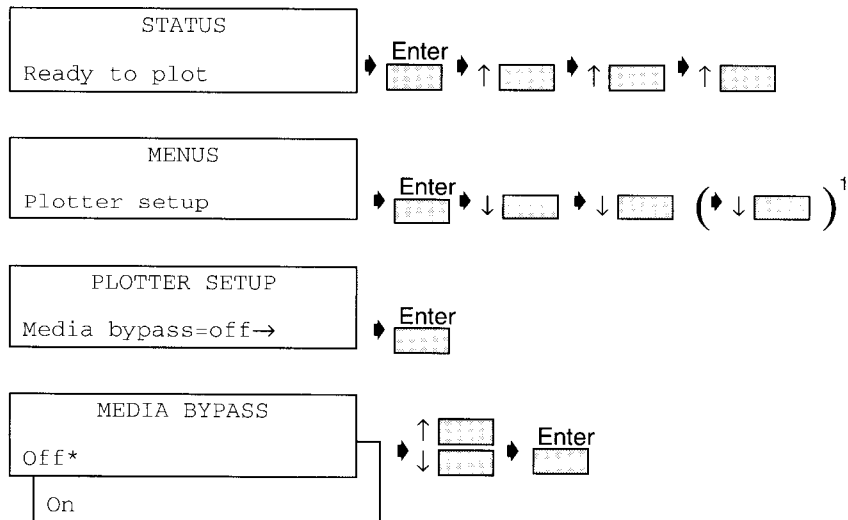
1 For plotters with code revision 3.1 or higher. Refer to **Utilities/Statistics**.

Setting print quality priority

1 From the Status screen, press **Enter**. Press ↑ to scroll to Plotter Setup, then press **Enter**.

2 Press ↓ once to display the Quality setting (either *Software* or *Plotter*).

3 To change the setting, press **Enter**, scroll to the setting you want, then press **Enter**.

When Quality=Software, the printing quality is the last setting either sent by the software or set on the plotter. When Quality=Plotter, all quality settings sent by the software are ignored. The print quality is *Draft*, *Final*, or *Enhanced* as set by the front-panel button.
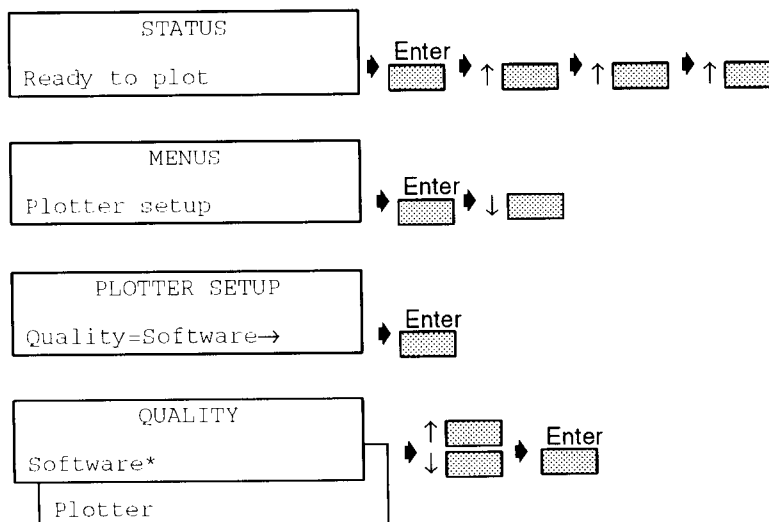
Setting interface conditions

Setting interface conditions

The I/O setup menu helps your computer and plotter communicate.
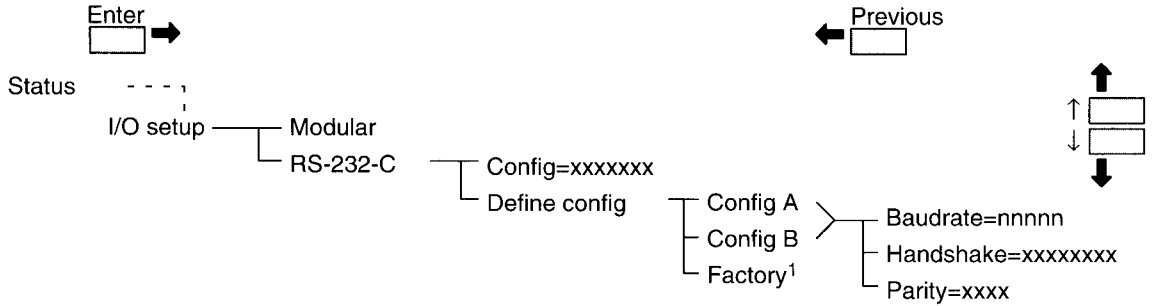
Interface considerations

Your plotter comes standard with a parallel and serial interface. A parallel interface is always recommended because it is faster than using a serial (RS-232-C) interface. Also, a parallel interface requires no front panel setup. The plotter is also setup to handle a modular interface option (MIO). The setup procedures for MIOs are specific to themselves; refer to the documentation that comes with your modular interface option.

[1] You can only view the factory settings; you cannot change them.

Serial interfaces

When using a serial interface, you must specify certain characteristics through the front panel—such as the baudrate, handshaking method, and parity. (You may need to refer to your computer or software documentation for this information.) All three of these characteristics must match with your computer, software, and plotter or your plotter will not be able to plot your drawing.

If you use different software applications that require different settings, you may want to define separate configurations for each of these serial settings. You can define up to two different serial configurations that differ from the factory configuration. By setting up these different serial configurations ahead of time, you can quickly change from one configuration to another as you switch one software application to another.

Changing from one interface to another

The plotter can accept plot files from one interface at a time. To change from one connected interface to another, refer to "To reset the plotter" in chapter 8, "Utilities". Always wait for all plots in the queue to finish as resetting the plotter empties the contents of the queue.

To select the modular interface

1 From the Status screen, press **Enter**. Press ↓ four times to scroll to I/O setup, then press **Enter**.

2 Press **Enter** to setup your modular interface option (MIO).

3 Follow the instructions on the front panel for setting up the MIO.

Required instructions for the modular interface option are specific to the option you select. Refer to the documentation that accompanies the MIO.

```
        STATUS
Ready to plot
```
▸ Enter ▸ ↓☐ ▸ ↓☐ ▸ ↓☐ ▸ ↓☐

```
        MENUS
I/O setup
```
▸ Enter

```
      I/O SETUP
Modular→
```
▸ Enter
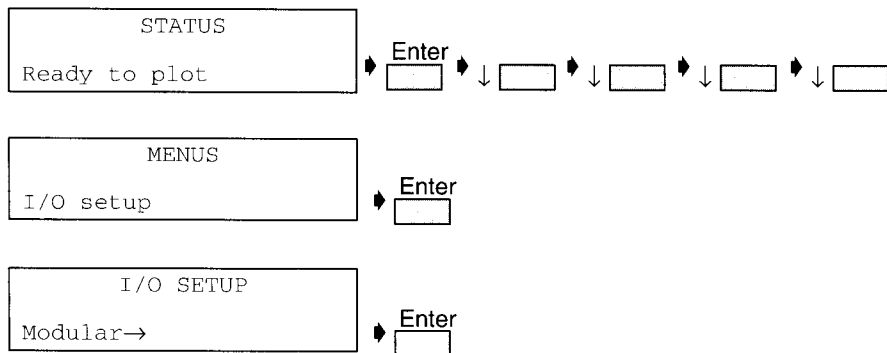
To load a serial configuration

1 From the Status screen, press **Enter**. Press ↓ four times to scroll to I/O setup, then press **Enter**.

2 Press ↓ to scroll to RS-232-C and press **Enter**. The plotter displays the currently loaded serial configuration.

3 Press **Enter**, then use the scrolling buttons until the configuration you want to use displays and press **Enter**.

Initially, all serial configurations are the same. Refer to "To change serial configuration settings" later in this chapter.
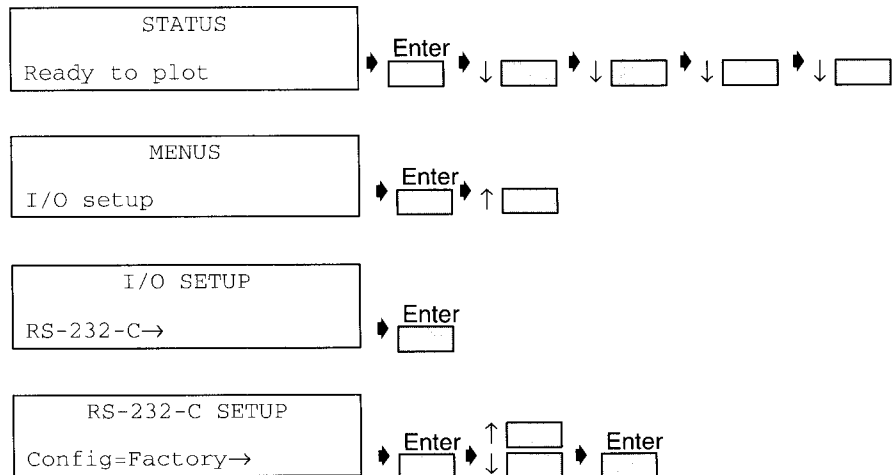
To change baudrate, handshake, or parity

1 From the Status screen, press **Enter**. Press ↓ four times to scroll to I/O setup, then press **Enter**.

2 Press either scrolling button to scroll to RS-232-C and press **Enter**.

3 Press either scrolling button to scroll to Define config and press **Enter**.

4 Use the scrolling buttons to display the configuration you want to change, then press **Enter**. (Note that you cannot change the Factory configuration, you may only view its settings for reference while you are in this menu.)

5 Scroll to the configuration options (*Baudrate*, *Handshake*, and *Parity*) as necessary. When the option you want displays, press **Enter**. The plotter displays the current setting for that option.

6 Use the scrolling buttons to review the other choices. When the setting you want displays, press **Enter**.

7 Return to step 5 for each serial configuration option you want to change.

For each of the serial settings below, choose the setting that matches your computer's capabilities.

Baudrate options are: 38400, 19200, 9600 (Default), 4800, 2400, and 1200.

Handshake options are: Hardwire, Xon/Xoff, and Both (default).

Parity options are: None (0), Even, Odd, And Mark. The default is *None (0)*.

```
        STATUS
                        Enter
  Ready to plot              ↓ ▭   ↓ ▭   ↓ ▭   ↓ ▭
```

```
        MENUS
                        Enter
  I/O setup                  ↑ ▭
```

```
        I/O SETUP
                        Enter
  RS-232-C→                  ↑ ▭
```

```
      RS-232-C SETUP
                        Enter
  Define config→
```

```
      DEFINE CONFIG
                        Enter
  Config A→
```

```
        CONFIG A
                        Enter   ↑ ▭   Enter
  Baudrate=9600→             ↓ ▭           ↑ ▭
```

```
        CONFIG A
                        Enter   ↑ ▭   Enter
  Handshake=Both→            ↓ ▭           ↑ ▭
```

```
        CONFIG A
                        Enter   ↑ ▭   Enter
  Parity=None(0)→            ↓ ▭
```

8
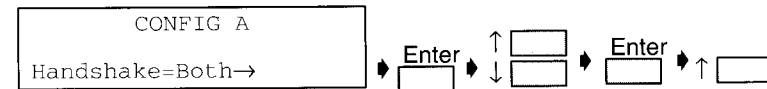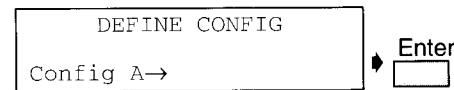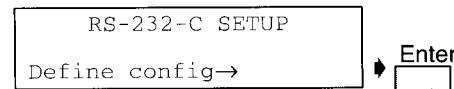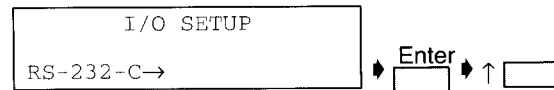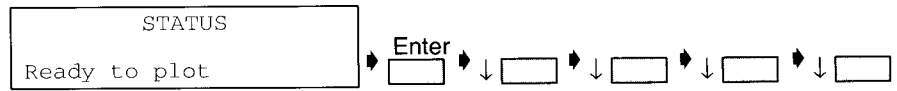
Using plotter utilities

Using plotter utilities

Reviewing the Utilities menu

The Utilities menu contains several functions to help you get the most out of your plotter. This includes giving you information you might need for your software, resetting or calibrating the plotter, aligning the pens, and changing the front panel's language.
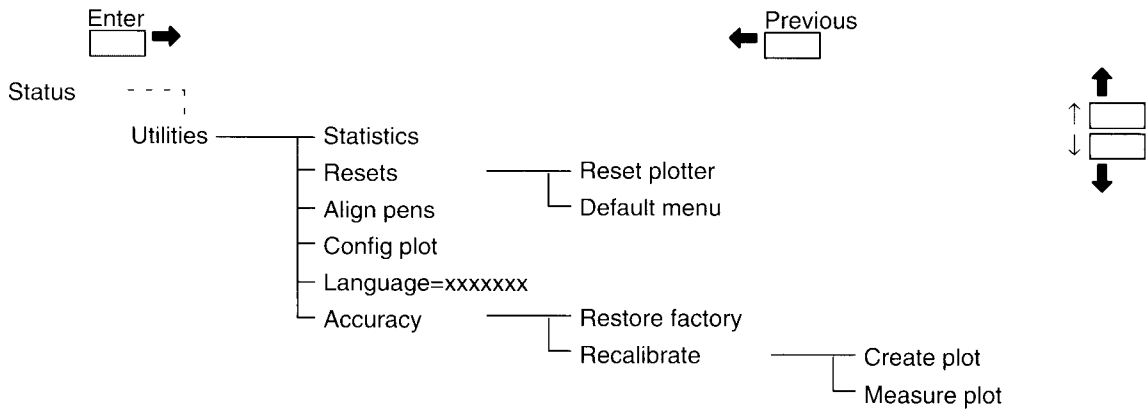
To review plotter information

1 From the Status screen, press **Enter**. Press ↓ three times to scroll to Utilities, then press **Enter**.

2 Press **Enter** and use the scrolling buttons to review statistical information the plotter tracks internally.

The plotter tracks the following information.

Max X/Max Y Specifies the size of each axis.

Code revision Indicates the revision number of the plotter's internal software.

RAM present Specifies the number of megabytes (MB) in the plotter.

ROM SIMM Indicates the presence of a ROM SIMM in the plotter (and, when necessary, tells you the version number of the ROM SIMM installed).
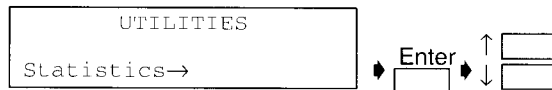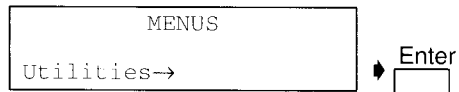
To reset the plotter

1 From the Status screen, press **Enter**. Press ↓ three times to scroll to Utilities, then press **Enter**.

2 Press ↑ to scroll to Resets and press **Enter**.

3 Press ↑ to select the reset option you want and press **Enter**.

Reset plotter

This is equivalent to turning off and on the plotter. Note that the plotter does not save the current setting of the Media bypass option.

Default menu

Returns most menu options to their factory defaults. Only the current I/O serial configurations (A and B) are preserved.
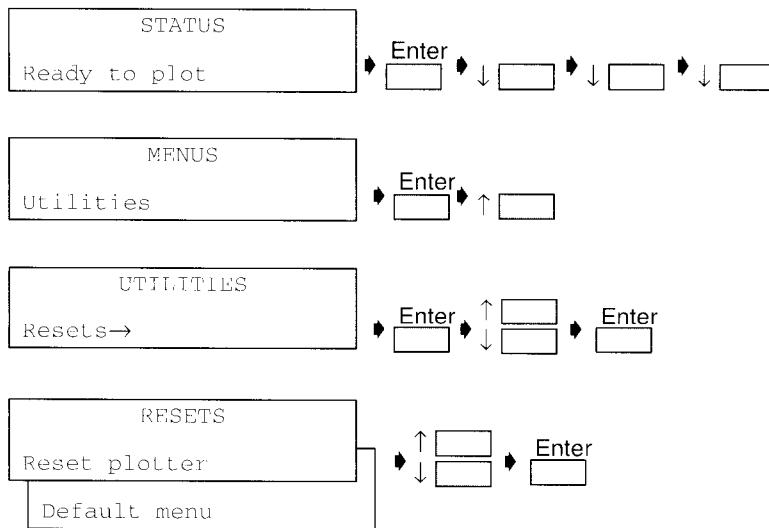
To align pens

1 Load media. (Refer to chapter 1 for procedures.)

2 From the Status screen, press **Enter**. Press ↓ three times to scroll to Utilities, then press **Enter**.

3 Press ↑ twice to scroll to Align pens and press **Enter**. The plotter begins the procedure immediately.

Align the pens if your media has recently jammed or if the vertical lines on your plots look jagged.

Don't open the window while alignment is proceeding, or you'll get an error message ("Alignment error / Continue") and the plotter restarts the alignment procedure from the beginning. When pen alignment is complete, the media is fed out. You can discard the printout.

```
┌─────────────────────┐
│       STATUS        │        Enter
│                     │  ▸  ┌────┐  ▸ ↓ ┌────┐  ▸ ↓ ┌────┐  ▸ ↓ ┌────┐
│  Ready to plot      │     └────┘       └────┘       └────┘       └────┘
└─────────────────────┘
```

```
┌─────────────────────┐
│       MENUS         │        Enter
│                     │  ▸  ┌────┐  ▸ ↑ ┌────┐  ▸ ↑ ┌────┐
│  Utilities          │     └────┘       └────┘       └────┘
└─────────────────────┘
```

```
┌─────────────────────┐
│      UTILITIES      │        Enter
│                     │  ▸  ┌────┐
│  Align pens         │     └────┘
└─────────────────────┘
```
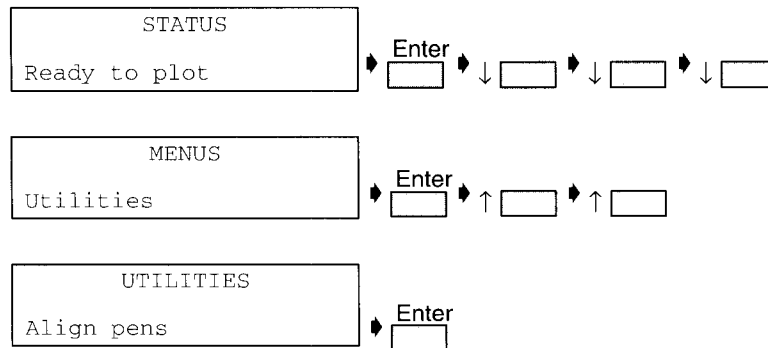
To plot configuration information

1 Load D/A1- or E/A0-size media. (Refer to chapter 1 for procedures.)

2 From the Status screen, press **Enter**. Press ↓ three times to scroll to Utilities, then press **Enter**.

3 Press ↑ three times to Config plot and press **Enter**. The plotter begins creating the configuration plot immediately.

The configuration plot prints accuracy marks 500 mm apart, shows the current hard-clip limits (outlining the printable area), along with the following information.

• Page format/Rotate, /Mirroring, /Margins settings.

• Plotter setup/Pen check setting.

• Pen settings palette settings.

• I/O setup settings.

• Utilities/Statistics information.

Use the configuration plot to help diagnose a plotter problem such as accuracy calibration or plot quality.

```
+---------------------------+
|          STATUS           |      Enter
|                           |   ▸ [____] ▸ ↓[___] ▸ ↓[___] ▸ ↓[_____]
|  Ready to plot            |
+---------------------------+
```

```
+---------------------------+
|          MENUS            |      Enter
|                           |   ▸ [____] ▸ ↑[___] ▸ ↑[___] ▸ ↑[_____]
|  Utilities                |
+---------------------------+
```

```
+---------------------------+
|         UTILITIES         |      Enter
|                           |   ▸ [____]
|  Config plot              |
+---------------------------+
```
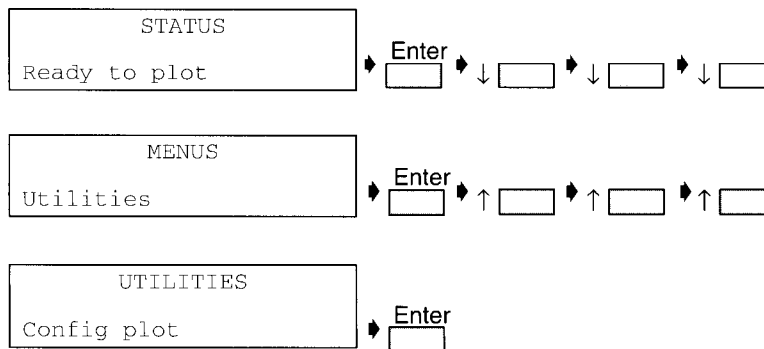
To set the front panel language

1 From the Status screen, press **Enter**. Press ↓ three times to scroll to Utilities, then press **Enter**.

2 Press ↓ twice to scroll to Language and press **Enter**. The plotter displays the currently displayed language.

3 Use the scrolling buttons until the language you want used for front panel messages displays and press **Enter**.

If someone has set the plotter in a language you cannot understand, press Previous until the front panel display stops changing; this is the Status menu. Then you can use the illustration below to guide you to the lanugage menu and return the front panel to a language you can read.
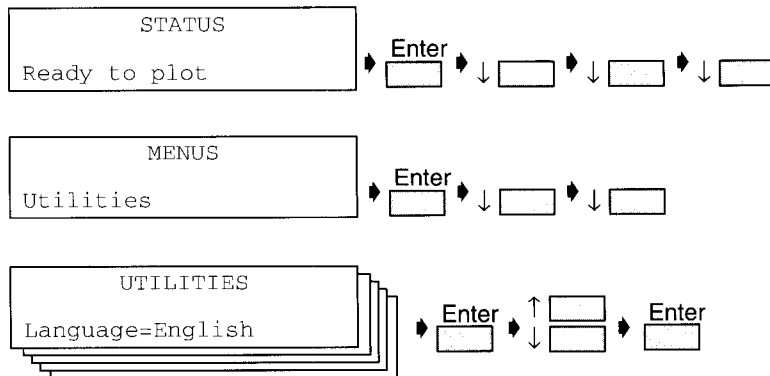
To calibrate the plotter

1 If you have calibrated the plotter and want to restore the factory calibration settings, begin with step 3.

2 Load a sheet or roll of polyester film for greatest accuracy. The physical size of the media *must* be D/A1 or E/A0.

If you load a D/A1-size sheet, hold the film by the short edges and load the long edge into the plotter.

3 From the Status screen, press **Enter.** Press ↓ three times to scroll to Utilities, then press **Enter.**

4 Press ↓ twice to scroll to Accuracy and press **Enter.**

5 Scroll to Recalibrate and press **Enter.**

6 Press ↑ to create a calibration plot.

7 Once the plot is finished, remove it (press **Form Feed/Cut** if using roll media) and rotate the plot 90° counterclockwise and reload it *with the printed side down.*

8 Return to this menu and select Measure plot.

If your measured accuracy, media thickness, or environmental conditions vary greatly from the factory standards, you may want to recalibrate the plotter using this procedure.

Once created, you can reuse the calibration plot and later remeasure the plot to check the plotter's accuracy. Store the plot flat or rolled with the print side out. If the film takes a curl in the wrong direction it can become impossible to load into the plotter.

Another, less accurate way to check the plotter's accuracy is to print the Configuration Plot (refer to "To plot configuration information" earlier in this chapter) and measure the distance between the cross marks. The measured value should be 500 mm.

```
┌─────────────────────────┐
│         STATUS          │      Enter
│                         │  ┌──────┐    ┌────┐    ┌────┐   ┌────┐
│  Ready to plot          │  └──────┘ ↓ └────┘  ↓ └────┘  ↓ └────┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│         MENUS           │      Enter
│                         │  ┌──────┐    ┌────┐    ┌────┐
│  Utilities              │  └──────┘ ↓ └────┘  ↓ └────┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│       UTILITIES         │      Enter
│                         │  ┌──────┐    ┌────┐
│  Accuracy               │  └──────┘ ↓ └────┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│        ACCURACY         │      Enter
│                         │  ┌──────┐
│  Recalibrate            │  └──────┘
└─────────────────────────┘
```

```
┌─────────────────────────┐
│ Create plot    ------>  │    ↑ ┌────┐
│                         │      └────┘
│ Measure plot   ------>  │
└─────────────────────────┘
```

Plotter creates
calibration plot:

```
┌─────────────────────────┐
│ Create plot    ------>  │    ↓ ┌────┐
│                         │      └────┘
│ Measure plot   ------>  │
└─────────────────────────┘
```

```
┌─────────────────────────┐
│ Load arrow edge         │
│                         │
│ print side down         │
└─────────────────────────┘
```

Reload media

9
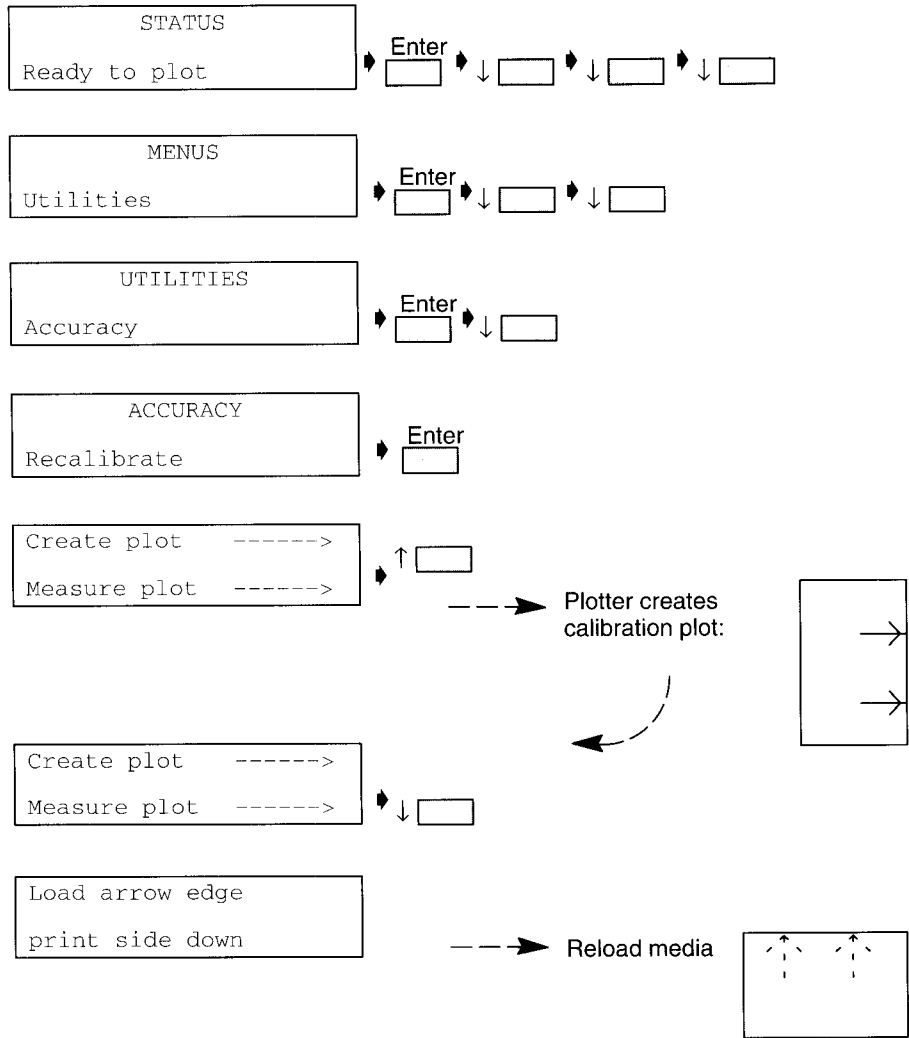
Troubleshooting and maintenance

Solving problems

This section will help you correct some of the most common problems that can occur in the day-to-day operation of the plotter.

- If the problem has no obvious cause, refer to "Locating the source of your problem".

- If you can narrow the problem to a certain area, refer to that chapter in the manual for the step-by-step procedures. If the problem persists, refer to the appropriate section in this chapter (for example, "Solving media handling problems").

- If you don't know where your problem lies, check the "Miscellaneous trouble-shooting" section in this chapter.

Locating the source of your problem

1 Test the plotter.

- Turn off the plotter and check that the power cord is firmly inserted in the plotter and plugged in to an outlet that you know works.

- Turn on the plotter and print a demonstration plot (refer to chapter 1). If the plotter produces the demo plot correctly, the problem is probably not with your plotter.

2 Test your computer hardware and interface (refer to the *Setup Guide*).

- Check that you are using the correct interface cable between the computer and plotter and that it is firmly connected to the proper ports.

- Send the communication verification program from your computer to the plotter. If this program works, the problem is probably not with your hardware or interface.

  If the program doesn't work, check that the I/O setup menu settings match the requirements of your hardware (refer to chapter 7). Also, if you have changed your interface, reset the plotter before trying to plot (refer to chapter 8).

3 Check your software.

- Make sure the interface settings in the Plotter Setup menu match the settings and requirements of your software. See chapters 5 and 6 for details.

4 Check your pens.

- Load new pens and print the configuration plot (refer to "To plot configuration information" in chapter 8).

Solving media handling problems

The following paragraphs describe problems that are related to media handling.
Refer to chapter 1 for standard media handling procedures.

Media loading
problems

If the front panel keeps telling you media is misaligned or mispositioned

- **Sheet media** Unload media and reload so that the left/right edges are even, the leading edge is straight (cut if necessary), and the right edge is no more than 0.5 cm (0.2 inches) from either side of the perforated line on the entry platen.

- Turn on the media bypass feature. Refer to "To compensate for poorly cut media" in chapter 6.

- Use this alternative method of loading sheet or roll media.

    1 Raise the media lever and cover.

    2 Insert the media along the perforated line on the platen.

    3 Push in the media until it stops. Push in so that the media buckles slightly.

    4 Hold the media with one hand and lower the media cover with the other.

    5 Once you feel the plotter grab the media, let go of the media.

    6 Refer to the front panel and follow normal media loading procedures.

- **Roll media** Refer to chapter 2 and check the following.

    – Media stops are in place.

    – Media loads from under the roll toward the front of the plotter.

    – Media is aligned with the perforated line on the platen.

If roll media crumples when you load it

- Clear any obstructions in the media path.

- When loading, push media *evenly* against the rear stops and let go when the plotter begins to pull the media in.

- Be sure the leading edge is straight and free of tears. Cut a straight edge with the knife if necessary.

- If your media is curled, load it with the curl up. The exception is film, which must always be loaded with the plotting side (matte side) down.

- When loading media, hold each edge and push the media into the plotter against the stops until a slight buckle develops evenly across the media. Let go as soon as it starts to feed into the plotter.

- If you have just moved the plotter or your media from a humid environment, load new media. Or, if you are using roll media, trim off the first few inches before you plot by pressing the **Form Feed/Cut** button three times.

- **Roll mode** Open the roll cover and raise the lever. Unload the leading edge of the roll. Push the media all the way to the right so that it is flush against the media stop on the roll core. Then reload the media.

If plots are not fed out properly

- Be sure the roll cover is completely closed before you plot.

If you cannot get more than one plot on a sheet

- This is correct plotter operation. Nesting is a roll media feature only. To economize on sheet media, cut your large sheets in half or switch to smaller sheets.

Automatic cutter problems

If the automatic cutter does not cut immediately after a plot is finished

- Press the **Form Feed/Cut** button if you need to cut the media before the ink-drying time has passed. Use caution to avoid smearing the ink.

- Check the ink-drying time and change if necessary. Refer to "To dry the plot before storing" in chapter 6.

If the automatic cutter does not work

- The automatic cutter is a roll media option only.

- Your software application may have disabled the automatic cutter. Refer to your software documentation or contact your software vendor for more information.

If plots fall on the floor after being cut

- Adjust the bin for the length of your plots. The larger the plot, the higher the bin setting number you should use. Refer to "To adjust the media bin" in chapter 2.

- Do not let more than twenty plots accumulate in the bin.

If plots are not stacking properly in the bin

- If plotted media is sagging or wrinkling between the bin wires after it is cut and fed out, try placing a sheet of scrap paper in the bin shelf that is at least the size of the plot.

- Adjust the bin for the media length you are using. Refer to "To adjust the media bin" in chapter 2.

- Load a new roll or remove plots manually as they are completed. You may be too close to the end of the roll. The natural curl near the end of the roll can cause stacking problems.

Solving plot quality problems

Plot appearance
problems

If the plot is completely blank

- Check the pens to be sure you have removed all of the protective tape.

- Your pens may be out of ink. Refer to the "Replacing pens" section of chapter 2.

If the plot's appearance is not what you expected

- Check the front panel settings for media type and print quality to be sure they are correct.

- Check the Page format/Rotate, mirroring, and margins settings to be sure they are as you want them. If they conflict with the commands you have set in your software, change them so that they are compatible. Refer to chapter 5 instructions about each of these features.

- Check your pen width and shading settings for the palette you are using.

- Check the Pen settings/Merge control setting.

- Ask your software vendor about any driver limitations.

If your output contains only a partial plot

- **HP 7586B drivers only** Your Timeout setting may be too low. Increase the setting and plot again. Refer to "To set a graphics language mode" in chapter 6.

- **HP 7586B drivers only** You may have pressed the **Form Feed/Cut** button before all data was received by the plotter. Send the plot again.

- Check to make sure that your software settings are correct for your current plot size (e.g., long-axis plots).

If a plot overlays another plot on the page

- If Plotter setup/Lang=7586, HP-GL/2, change the Timeout or Terminator settings and send the files again.

If vertical lines on the plot look jagged

- Swap the position of the pens; put the left pen in the right pen slot, and put the right pen in the left pen slot. Refer to "Accessing pens" in chapter 1.

- Run the pen alignment procedure using good quality media. Using poor media can affect the alignment. Refer to "To align the pens" in chapter 8.

- If you are plotting on paper, change the media type to **Vel/Transl** and the print quality to **Final** or **Enhanced**.

- If none of the above suggestions work, try replacing the pens. See "Replacing pens" in chapter 2.

If area fills on plots have random dark or light bands

- Change the media type to **Vel/Transl** and the print quality to **Final** or **Enhanced**.

- Run the pen alignment procedure using good quality media. Using poor media can affect the alignment. Refer to "To align the pens" in chapter 8.

- Run the accuracy calibration procedure.

- If none of the above suggestions seem to work, try replacing the pens.
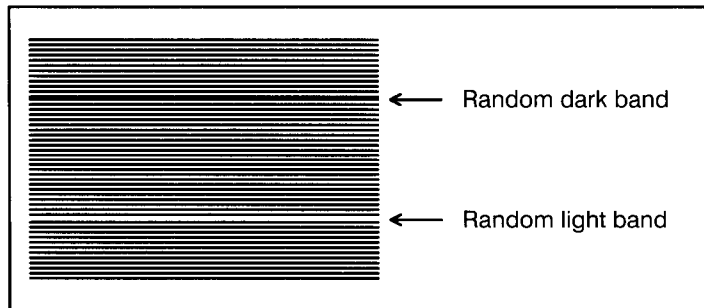
If area fills on plots have pronounced banding

Some banding is normal, especially in dark or dense area fills. If banding is more pronounced than expected, however, try the following.

- Reduce the % shading of the pens.
- Replace the pens.

If ink on the plot looks "blotchy" or has uneven ink density

- Use a different **Media Type** setting.
- Try another brand of media.
- If using film, use only Hewlett-Packard polyester film.

If lines bleed or appear fuzzy

- If you are plotting on vellum or translucent media, try using Hewlett-Packard media.
- The plotter may be located in an area where the temperature and humidity are too high. For optimum print quality, we recommend that the operating environment not exceed the range of 15–30°C (59–86°F) with 20-80% relative humidity.

Plot accuracy problems

If plots are not accurate

- If you notice problems with accuracy, recalibrate the plotter's accuracy. See "To calibrate the plotter for accuracy" in this chapter.

If the output is distorted or unintelligible

- Make sure the interface settings in the I/O setup menu match the settings and requirements of your software and hardware.

Plot location problems

If the entire plot is in one quadrant of the correct plotting area

- Your software may be incompatible with the plotter. If your driver was written for HP-GL/2, try changing the graphics language mode to "HP-GL/2." Refer to "To set a graphics language mode" in chapter 6.

Solving pen problems

If ink smears after you remove a plot

• Be sure the ink is dry first. Check the ink-drying times in "To dry the plot before storing" in chapter 6.

• Select the proper **Media Type** and **Print Quality** front panel settings for the media you are using.

• Use and store the plotter in an area where the relative humidity is no greater than 80%.

• Handle media by the edges. If possible, wear gloves when you handle film. Skin oils can interact with ink and cause it to smear.

• For optimum print quality, we recommend that the operating environment not exceed the range of 15–30°C (59–86°F) with 20-80% relative humidity.

If the **Access Pens** button does not work

• Make sure the window is closed before you press **Access Pens**.

If the plotter performs pen alignment unexpectedly

• The plotter performs the pen alignment every time you insert pens, whether they are new or not. Do not remove the pens unless they are out of ink.

You can stop the alignment by pressing **Cancel**, but the plotter will restart the alignment procedure the next time you try to plot.

If brand new pens have problems

• Check the pens to be sure you have removed all of the tape.

• Try reseating or cleaning the pens. Refer to chapter 1 for reseating and cleaning instructions.

Solving front panel problems

If the Access Pens button does not work

• Make sure the window is closed before you press **Access Pens**.

If none of the front panel buttons work

• Turn the plotter off and then on again. If the problem persists, have your plotter serviced.

If Page format/Rotate does not work

• Your plot file may be too big for the plotter's buffer. If you install additional memory, your entire plot can fit into the plotter's buffer.

• The plotter cannot rotate raster images. If your plots contain raster data (typically, images with heavy area fill and shading·that you have scanned into your software) you will not be able to rotate the plot.

If the front panel says the roll is misaligned or mispositioned

• Unload media, open the roll cover, and push the media roll all the way to the right so that it is flush against the media stop on the roll core. Reload media with the right edge no more than 0.5 cm (0.2 inches) from either side of the perforated line on the entry platen and make sure the left/right media edges are even with the left/right roll core edges. Refer to chapter 1 "To load roll media" for more detailed instructions.

If a display message will not clear

• Look up the message in the list of state, action, and error messages in the "Reference" chapter at the end of this manual. The message description may help you understand and resolve the problem.

• If looking up the message did not help, press **Enter**. If that does not work, turn the power off, then on again. If the message still displays, have the plotter serviced. If the message says "System error" and has an alphanumeric code, refer to the next explanation.

If a "System error" message is displayed

- Press **Enter**. If the message does not clear, turn the plotter off, then on again to try to clear the error message. If media appears to be jammed, clear it. If the message still displays, record the alphanumeric code and have the plotter serviced. Report the code to the service technician; knowing the code number will help the technician resolve the problem.

If you get an "Out of memory/Data was lost" message

- The current plot is too large for the plotter's buffer. To do this plot you will have to install additional memory. Refer to the *Setup Guide* for more information.

Miscellaneous troubleshooting

If the plotter does not plot

- Reset the plotter to activate the current interface. Refer to "To reset the plotter" in chapter 8. Do not connect more than one interface cable to the plotter at one time.

- If you are sure all plot data has been sent, press the **Form Feed/Cut** button to end any Timeout period and force plotting to start. For more information about the Timeout period, refer to "To set a graphics language mode" in chapter 6.

- If nothing happens after trying all of the above, you might have a problem with your application driver. If your driver was written for HP-GL/2, try changing the graphics language mode to "HP-GL/2." Refer to "To set a graphics language mode" in chapter 6.

- If you continue to have problems, contact your software vendor.

If the bail does not lower all the way

- Check for obstructions under the bail.

- Make sure the cutting carriage is pushed all the way to the right.

If the plotter waits too long to plot a nest

- Change the Plot mgmt/Nest wait setting.

If the plotter performs pen alignment unexpectedly

- The plotter aligns the pens every time you insert pens, whether or not the pens are new or not. This is a normal plotter operation.

If the plotter seems too slow

- Check that the **Media Type** and **Print Quality** front panel settings are appropriate. Refer to chapter 1.

Caring for the plotter

Maintenance and repairs beyond cleaning the plotter should be performed by a service technician. Plotter care is limited to cleaning the outside of the machine. Use a damp sponge or soft cloth and household cleaner.

WARNING

To avoid electrical shock, unplug the plotter before you clean it. Do not let water get inside the plotter.

CAUTION

Do not use abrasive cleaners on the plotter.

Before you call for service, go through the troubleshooting procedures in this chapter to make sure the problem is in the plotter and not the computer, the software or the interface. If the plotter does need servicing, contact your Hewlett-Packard sales representative.

Getting help

Hewlett-Packard has support services available to help you in case you have a problem with your plotter. Following are suggestions of places to turn for this support.

Before you call for customer support, make sure you do the following.

1 Review the troubleshooting suggestions in this chapter.

2 Run the Demonstration plot as described earlier in this chapter. If the Demonstration plot works, the problem is probably not with your plotter.

3 Check with your software vendor for help.

If you still have difficulty, begin by contacting the person from whom you purchased your plotter. Your sales representative is familiar with your needs, equipment, and software and should be able to provide you with the information you want.

Reference

Front panel messages

The following tables list all the messages displayed on the front panel, and descriptions of each message. They are listed alphabetically so you can look them up if you need clarification, or if you are unsure of what to do.

The front panel messages are divided into three categories.

- **State messages** tell you what the plotter is doing, has done, or is waiting for.

- **Action messages** prompt you to perform a specified action.

- **Error messages** indicate that either a user error or an internal error has occurred. Some action may be required.

State messages

The following messages don't require you to take any action. They describe one of three things: the current state of the plotter (e.g., "STATUS / Ready for media"), the operation the plotter is currently performing (e.g., "Testing pens"), or the operation the plotter just finished performing (e.g., "Pen palette saved").

Message	State
Accessing pens	You have pressed the **Access Pens** button. The pen carriage is moving out so you can access it.
Aligning pens	Plotter is aligning pens.
Cancelling	You have pressed the **Cancel** button and the plotter is in the process of cancelling the procedure. You may continue when this message is no longer displayed.
Checking media	Plotter is checking to see if media is properly positioned with respect to the perforated line of the entry platen.
Creating calibration plot	Plotter is performing accuracy calibration.

Message	State
Ink drying (xxx seconds)	The ink on your plot is drying. Wait before removing the plot. If you remove it before the indicated time has passed, avoid smearing the ink.
Loading roll	Plotter is loading roll media.
Loading sheet	Plotter is loading sheet media.
Measuring plot	Plotter is measuring the accuracy calibration plot you just loaded.
Returning pens	The pen carriage is returning to its station at the left of the plotter.
Roll feed Edge trim	Plotter is trimming the edge of roll media.
RS-232 config loaded	The RS-232-C configuration you just entered (Config A, Config B, or Factory) has been loaded.
RS-232 config saved	The baud, handshake, and parity settings you just entered for your RS-232-C configuration have been saved as either Config A or Config B (whichever you specified).
STATUS Initializing	Plotter is doing internal checking upon powerup.
STATUS Out of media	The plotter has detected that the roll is empty. Remove the old roll and insert a new one, using the instructions in chapter 2.
STATUS Plotting	Plotter is plotting.
STATUS Ready for media	Plotter is ready for you to load media.
STATUS Ready to plot	Plotter is ready to plot.
STATUS Receiving	Plotter has received plot data.
Testing left pen	The plotter is testing the left pen for problems, i.e., clogged pen or bad electrical connection (improper seating).
Testing right pen	The plotter is testing the right pen for problems, i.e., clogged pen or bad electrical connection (improper seating).

Action messages

The following front panel messages prompt you to take action.

Message	Action
Calibrate done Continue →	Accuracy calibration is complete. Press ↓ to continue.
Can't replot Resend plot	Replot buffer doesn't have enough memory to hold the entire plot. Resend the plot.
Close roll cover Continue →	Rewind the media to take up any slack in the roll, close the roll cover, then press ↓ to continue.
Create plot → Measure plot →	Press ↑ to create a calibration plot. Press ↓ to measure a calibration plot.
Lift lever	Lift the lever at the right of the plotter.
Load arrow edge print side down	Remove accuracy calibration plot, turn it so that the edge with arrows printed on it is print side down, then load that edge into the plotter.
Load cancelled Remove media	You pressed the **Cancel** button while media loading was in progress. Remove media.
Load media to align pens	Load media to proceed with pen alignment.
Lower lever after aligning	When you've finished aligning the roll media as instructed, lower the lever at the right of the plotter.
Lower window to continue	You have lifted the window while the processor is busy. Close the window to continue.
Open window to access pens	Lift the window to access the pens.
Pen alignment Close window	Close the window to proceed with pen alignment.
Pull ↓ / Align ↔ edges to roll	Grasp the left and right free edges of the roll media and pull toward you until the media is taut. At the same time, align the left and right edges of the media so that they are flush with the left and right edges of the roll. Refer to chapter 2 for an illustration.
Remove media Continue →	Ink is dry; you can remove the accuracy calibration plot the plotter just produced. Press ↓ to continue with accuracy calibration.

Message	Action
Replace left pen	Left pen has clogged nozzle. You must replace the left pen to continue.
Replace right pen	Right pen has clogged nozzle. You must replace the right pen to continue.
Reseat left pen	Left pen has not made proper contact in the pen slot. Remove the left pen and reseat it in the slot.
Reseat right pen	Right pen has not made proper contact in the pen slot. Remove the right pen and reseat it in the slot.
Sheet load → Roll load →	Press ↑ to load sheet media. Press ↓ to load roll media.
Sheet / Roll? Reload media	• You have chosen Sheet mode while loading roll media. Reload media. • You have loaded a sheet more than 51 inches (130 cm) long. Trim sheet and reload.
Swap pens	The pen carriage has automatically moved out for access. Raise the cover and switch the left/right positions of the pens. Lower the cover and continue.

Error messages

These messages indicate either that a user error or an internal error has occurred. Some error messages require action to clear, and others are only displayed until the next operation is performed by the plotter.

Message	Error/Action
Alignment error Continue →	Either you lifted the window while pen alignment was proceeding, or the plotter experienced an internal alignment failure. Press ↓ to continue. You must reload media and start over with pen alignment.
Calibrate error Continue →	You loaded the calibration plot incorrectly and it could not be measured. Press ↓ to continue, then reload the plot for measurement. Follow front panel instructions.
Edge not found Reload media	Plotter could not find edge of media during loading procedure. Check the leading edge of the media for unevenness or tears; cut a straight edge, if necessary, and reload. Be sure to position the right edge along the perforated line on the entry platen when loading.
Error lowering bail	There is either an obstruction under the bail (remove it) or the cutting carriage is not pushed all the way to the right.
Load error Remove media	You inserted media with the lever up. Lower the lever and reload the media.
Lower lever to continue	You lifted the media lever while the processor was busy. Lower the lever to continue.
Media too small	Media you loaded for accuracy calibration or pen alignment is too small. Reload appropriate media. Refer to chapter 8 for more information.
Mispositioned Reload roll	Roll is mispositioned. Reload media (refer to media loading instructions in chapter 2).
Mispositioned Reload sheet	Sheet is mispositioned. Remove it and reload it with the right edge no more than .2 inches (.5 cm) from either side of the perforated line on the entry platen.
MIO data error	You configured the modular interface incorrectly. Press **Enter** to clear the message from the front panel display. Recheck the MIO configuration settings.
MIO error Comm. break	You prematurely stopped the flow of data from the computer to the plotter (e.g., by turning off the computer before all data is sent). Press **Enter** to clear the message from the front panel display.

Message	Error/Action
MIO error Handshake	You configured the modular interface incorrectly. Press **Enter** to clear the message from the front panel display. Check the handshake settings in the plotter's front panel, in the hardware configuration, and in your application software configuration to be sure they are compatible with each other.
Out of memory Data was lost	The current plot is too large for the plotter's buffer. You must install additional memory to plot this drawing. Refer to the *Setup Guide*.
Remove media Lower lever	You have attempted to load media while the lever at the right of the plotter was raised. Remove the media, lower the lever, and reload media with the lever down.
Roll misaligned Reload roll	Roll media is skewed. Reload media (refer to media loading instructions in chapter 2).
RS-232 error Baud, parity	You configured the RS-232-C interface incorrectly. Press **Enter** to clear the message from the front panel display. Check the baud rate and parity settings in the front panel, in the hardware configuration, and in your software to be sure they are all compatible.
RS-232 error Handshake	You configured the RS-232-C interface incorrectly. Press **Enter** to clear the message from the front panel display. Check the handshake settings in the plotter's front panel, in the hardware configuration, and in your software to be sure they are all compatible.
Service pens → Continue →	Pen Check is on and an error has been detected. Press ↑ if you want to service the pens (replace or reseat). Press ↓ if you want to continue without servicing the pens. Refer to chapter 2 if you want more information about replacing and reseating pens.
Sheet misaligned Reload sheet	Sheet media is skewed. Remove it and reload it so that the left and right edges being loaded into the plotter are square (see illustration in chapter 2). The leading edge must also be straight.
Switch power off Check media path	Turn off the plotter. The drive roller cannot move or the roll feed spindle cannot freely rotate. The plotter may be jammed with media. Check the media path and clear it if necessary (refer to chapter 2). Then turn on the plotter.
Switch power off Check pen path	Turn off the plotter. The pen carriage cannot move. The plotter may be jammed with media. Check the media path and clear it if necessary (refer to chapter 2). Then turn on the plotter.
System error XXXXXX	An internal error has occurred and a system error number is displayed. Press **Enter**; this may clear the error and allow you to continue. If you cannot continue, turn off the plotter, then turn it on again. If you still see the system error message, record the system error number and have the plotter serviced.
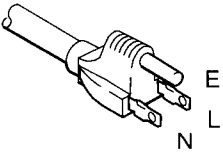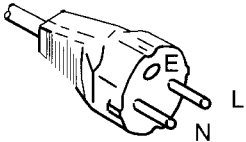
Power cords
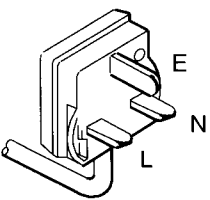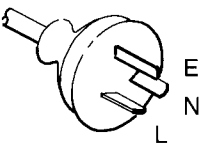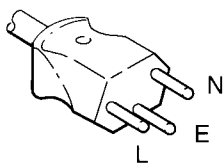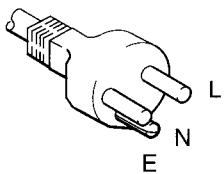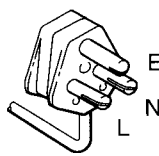
The power cord supplied with your plotter should meet the plug requirements for your area. However, different power cords (international options) are available (see below). If necessary, you can obtain a different power cable by contacting your local Hewlett-Packard Sales and Support office or authorized dealer. Note the following abbreviations used in the power cord options table below.

L – Line or Active Conductor (also called "live" or "hot")
N – Neutral or Identified Conductor
E – Earth or Ground

AC Plug Type	AC Voltage	Country	HP Part Number
NEMA 5-15P	120 V	Canada Philippines Taiwan United States	8120–1378
	127 V	Mexico	8120–1378
MITI 41-9692	100 V	Japan	8120–4753
CEE 7-VII	220 V	Continental Europe Egypt Saudi Arabia	8120–1689

AC Plug Type	AC Voltage	Country	HP Part Number
BS 1363A	240 V 220 V	United Kingdom Hong Kong	8120–1351
ASC112	220 V 240 V	China (mainland) Australia New Zealand	8120–1369
SEV 1011	220 V	Switzerland	8120–2104
DHCR-107	220 V	Denmark	8120–2956
	220 V 240 V	Republic of South Africa India	8120-4211

Specifications

Functional specifications

Number of pens	2
Minimum media sizes	Width (carriage path or y-axis): 21 cm (8.3") Length (paper path or x-axis), sheet only: 28 cm (11")
Maximum media sizes	Width (carriage path or y-axis): 91.7 cm (36.1") Length (paper path or x-axis), sheet only: 130 cm (51")
Media types	Plain paper bond Plain vellum (Hewlett-Packard preferred) Plain translucent paper (Hewlett-Packard preferred) Hewlett-Packard polyester film
Maximum plotting area	Media size minus margins (Side margins= about 5 mm [.2"], Leading/trailing edges = 17 mm [.67"]*) Expanded margins for roll media are 10 mm on the leading and trailing edges.
Resolution (addressable)	Enhanced:600x600 dpi Final mode: 300x300 dpi Draft mode: 300x300 dpi
Accuracy (Maximum accumulated error)	$\pm$.38 mm (.015 inches) or $\pm$.2% of the specified vector length, whichever is greater, at 23°C (73°F), 50–60% relative humidity, on HP Inkjet 0.0048-inch (0.012-cm) polyester film

*   Margins are approximate; exact values may vary by a millimeter.

Physical specifications

	C2847 (D-size)	C2848 (E-size)
Size	Length: 42" (cm) Width: 24.0" (cm) Height: 44.8" (cm)	Length: 53.7" (cm) Width: 24.0" (cm) Height: 46.8" (cm)
Weight	139 lbs (kg)	149 lbs (67.6 kg)

Environmental specifications

Operating environment	Plotter: 0 to 55°C (32 to 131°F) @ 20-80% relative humidity Writing system:10 to 40°C (50 to 104°F) @ 20-80% relative humidity
Storage environment	Plotter/media: –40 to 70°C (–40 to 158°F) Pens: –40 to 60°C (–40 to 140°F)

Power specifications

Source	100–240V AC±10%
Frequency	47–63 Hz
Consumption	90 W (1.2 A max.)

Acoustic specifications*

Operating sound pressure	54 dB(A)
Idle sound pressure	<20 dB(A)

*   These specifications are typical sound pressures at a one-meter bystander position.

EMC specifications*

Canada	Department of Communications Class B
Europe	Meets EN 55022 Class B emission limits EN 550101-2 ESD, EN55101-3 susceptibility
Germany	Meets FTZ 1046/84 Level B
Japan	Registered VCCI-2
South Africa	SABS licensed
USA	Federal Communications Commission certified Class B computing device peripheral CFR 47 Part 15

*   EMC= Electromagnetic compatibility

Safety specifications

Class 1 Information Technology Equipment (ITE)

Installation Category II

Pollution Degree 2

Plugable Type A equipment

For indoor controlled office environments use

USA approved: Underwriters' Laboratories
                                       "Listed" ITE, UL 1950

Canada approved: Canadian Standards
                                       Association "Certified" ITE,
                                       CSA C 22.2-950

Europe (EC) approved: EN 60950 compliance

Norway approved: NEMKO approved
                                       EN 60950, EMKO TUE
                                       (74)DK 203

HP-GL/2 programming information

If you are writing an HP-GL/2 driver for your plotter, refer to *The HP-GL/2 Reference Guide* for general instruction information. For specific parameter information, refer to *The Product Comparison Guide for HP-GL/2 and HP RTL Peripherals*.

The HP-GL/2 Reference Guide (ISBN 0–201–56308–8) is published by Addison-Wesley Publishing Company and can be ordered through most book stores. *The Product Comparison Guide for HP-GL/2 and HP RTL Peripherals* can be ordered through your HP Sales office.

PJL Summary

This chapter provides an overview of the Printer Job Language (PJL) included in the plotter. The PJL commands in the plotter allow a user to enter and exit PJL mode, determine the status of the plotter and comment their PJL driver and echo commands sent to the plotter.

General PJL Rules

- All commands (except the Enter PJL Command) must begin with @PJL. PJL *must* be capitalized.

- Except for @PJL, commands are not case sensitive. This means that ENTER, Enter and enter are identical.

- All commands must end with either <CR><LF> or <LF>.

- The only legal characters in a value field are a horizontal tab (ASCII 9) plus ASCII characters 32 through 126.

- Only the first 256 characters of a command are recognized. Additional characters cause the entire command to be ignored.

- Values in parentheses ( ) are optional.

Enter PJL   **<ESC>%–12345X**

Use: Exits the current non-PJL and enters the Printer Job Language.
If already in PJL, this command is ignored.

Remarks: This command performs the following actions:

• Prints all data received before this command.

• Shuts down the current language context in an orderly fashion.

Note that (<CR>)<LF> should *not* follow this command.

Enter non-PJL   **@PJL ENTER LANGUAGE=# (<CR>)<LF>**

Value	Meaning
HP–GL/2	Enter HP–GL/2 Language context

Default: The plotter automatically switches out of PJL and into HP-GL/2 language
context whenever a command is not prefaced with @PJL

Range: ASCII characters 9, 32–126

Remarks: This command allows the user to exit PJL and enter another language
context. It is recommended that the user exit PJL in this manner. Whenever the
plotter exits PJL, it enters the HP-GL/2 language context and begins parsing
HP-GL/2 commands.

Echo Characters
sent to plotter   **@PJL ECHO # (<CR>)<LF>**

Use: This command causes the plotter to return the value included with the
command back to the host.

Range: ASCII characters 9, 32–126. Maximum length of 256 characters. You can
include up to 256 characters in the valid ASCII character range (ASCII characters
9, and 32–256).

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Remarks: The response to the Echo command will be: @PJL ECHO #
<CR><LF><FF>. (Where # will be made up of ASCII characters 32–126 or ASCII
character 9 (horizontal tab).) Once the command string (including the value field)
exceeds 256, the entire command is ignored.

Comment

@PJL COMMENT # (<CR>)<LF>

Use: This command allows the program to include comments in their PJL
program. It has no effect on the plotter. You can include up to 256 characters in the
valid ASCII character range (ASCII characters 9, and 32-256).

Unsolicited Status

@PJL USTATUS TIMED = # (<CR>)<LF>
@PJL USTATUS DEVICE = # (<CR>)<LF>

Use: The USTATUS command is used to define when the status of the plotter
should be returned to the host. There are two independent modes of the unsolicited
response: TIMED and DEVICE.

Note that only one of TIMED or DEVICE may be used in a single command,
although both can be active at the same time.

TIMED=#

Value	Meaning
0	Disables sending of an unsolicited response set using the TIMED= command. Has no effect on the sending of unsolicited responses en-abled using the DEVICE=command.
1	Command is ignored.
2–300	Enables the sending of the current status every # seconds.
>300	Command is ignored.

Default: 0 (Timed response is disabled).

Range: Integers in the range 5 to 300, inclusive. All other values (including
negative values) cause the command to be ignored.

Remarks: When this command is included in the USTATUS string, it causes the plotter to send the current status every # seconds. Setting # to 0 disables the timed response, but has no effect on responses set using the DEVICE= string.

The syntax of the response from the plotter is:

```
@PJL USTATUS TIMED<CR><LF>
CODE=XXYYY<CR><LF>
<FF>
```

Where *XX* is the category and *YYY* is the error code. The tables below list the error codes and categories.

Category	Meaning
10	The response is for informational purposes only.
20	A PJL syntax error has occurred.
30	An error has occurred, but the plotter will continue to operate. No user intervention is required.
40	User intervention is required.
50	A hardware error has occurred and authorized service personnel should be called in.

Category	Code	Meaning
10	001	Ready to plot
	002	Ink drying *or* Plotting
	003	Initializing
	004	Self-Test (includes a printed self-test)
20	000	Wildcard error code. Used to return a display message to the controller
	001	Syntax error
	002	Unsupported/Invalid command
	003	Unsupported/Invalid option
	004	Unsupported/Invalid personality/system
	005	PJL command buffer overflow
	006	Invalid

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Category	Code	Meaning
30	001	Cancelling
	003	Modular interface error *or* RS-232-C communication error
40	001	Lower lever *or* Lower cover
	011	Bad pen
	013	Font cartridge error
	020	No media
50	000	Wildcard error code. Used to return a display message to the controller

Device=#

Value (#)	Meaning
On	Directs the plotter to send a response whenever the status changes, except when a PJL syntax error occurs.
Verbose	Directs the plotter to send a response whenever the status changes, regardless of the cause.
Off	Turns off unsolicited status set by either DEVICE=ON or DEVICE=VERBOSE. Has no effect on unsolicited status set using the TIMED command.

Range: Only the values listed above are valid.

Default: Unsolicited responses are disabled, regardless of the status of the plotter.

Remark: When a response from the plotter is sent, it has the following syntax:

```
@PJL USTATUS DEVICE<CF><LF>
CODE=XXYYY<CR><LF>
<FF>
```

Where *XX* indicates the category and *YYY* indicates the error code. Status responses for category 20 will be generated only when DEVICE=VERBOSE is specified. Refer to the category and error code tables listed for TIMED.

Turn unsolicited
status off

@PJL USTATUSOFF (<CR>)<LF>

Use: This command can be used to disable the unsolicited status response enabled
by use of the USTATUS command. It disables all unsolicited responses regardless
of whether they were set using the DEVICE or TIMED command.

Read unsolicited
status options and
bounds

@PJL INFO USTATUS (<CR>)<LF>

Use: This command gives a series of strings listing the types of unsolicited status
supported by the plotter. The listing will also contain the possible values that can be
set (see the USTATUS command) as well as the current setting.

Here's a sample of how the returned data would be formatted (<HT> means
"horizontal tab" [ASCII 9]):

@PJL INFO USTATUS<CR><LF>
DEVICE=ON [3 ENUMERATED]<CR><LF>
<HT>VERBOSE<CR><LF>
<HT>ON<CR><LF>
<HT>OFF<CR><LF>
TIMED=30 [2 RANGE]<CR><LF>
<HT>2<CR><LF>
<HT>300<CR><LF>
<FF>

Regulatory notices

Electromagnetic Compatibility (EMC)

FCC Statement (U.S.A.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interferences by one or more of the following measures:

- reorient the receiving antenna

- increase the separation between the equipment and the receiver

- connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- consult the dealer or an experienced radio/TV technician for help

C A U T I O N

Pursuant to Part 15.21 of the FCC Rules, any changes or modifications to this equipment not expressly approved by the Hewlett-Packard Company, may cause harmful interference and void the FCC authorization to operate this equipment.

DOC statement (Canada)

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limits applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

VCCI-2
(Japan)

この装置は，第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）基準に適合しております。

しかし，本装置をラジオ，テレビジョン受信機に近接してご使用になると，受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Korean EMI
statement

이 기기는 업무용으로 전자파장해검정을 받은 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 구입하였을 때에는 구입한 곳에서 비업무용으로 교환하시기 바랍니다.

Geräuschemission
(Germany)

LpA < 70 dB
am Arbeitsplatz
im Normalbetrieb
nach DIN 45635 T. 19

Telecommunications statement

Telecommunications
General Approval
(UK)

The HP DesignJet 600 plotter, Models C2847A and C2848A, are approved under Approval Number NS/G/1234/5/100003 for indirect connection to public telecommunicatiuons systems within the United Kingdom.

Declaration of conformity

DECLARATION OF CONFORMITY
according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Hewlett-Packard Company

Manufacturer's Address: 16399 West Bernardo Drive
San Diego, California 92127–1899

declares that the product

     Product Name: HP DesignJet 600 plotter

     Model Numbers: C2847A, C2848A

     Product Accessory: C1642A – HP-IB Modular I/O

conforms to the following Product Specifications:

     Safety: EN 60950 / UL 1950 / CSA 22.2 No. 950
EMKO TUE(74)DK203/91

     EMC: EN 55022 (1988) / CISPR, class B
prEN 55101-2 / (1990): 3KV CD, 8KV AD
prEN 55101-3 (1990), 3 V/m
FCC Part 15 Class B / DOC B / VCCI–2

Supplementary Information: The C2847A and C2848A were tested in a typical
configuration using a Hewlett-Packard PC (Vectra 386/25).

To obtain a Material Safety Data Sheet (MSDS)

You can obtain current Material Safety Data Sheets (HP Part numbers 51608A and 51626A) for the pens used in the plotter by mailing a request to this address in the USA:

Hewlett-Packard Customer Information Center
19310 Pruneridge Avenue, Dept. MSDS
Cupertino, CA 95014

Glossary

baud rate   For an RS-232-C interface, the data transmission rate between a computer and a peripheral (bits per second).

buffer   A memory area reserved for I/O operations.

Centronics   A parallel interface standard.

communication   Data exchange between two or more devices.

configuration   The way in which computer equipment and software is interconnected and set up to operate as a system.

continuous memory   Plotter memory which stores certain plotter conditions even when the plotter is turned off.

data communication   The exchange of data between devices.

default   A value or condition that is assumed if no other value or condition is specified.

dpi   Dots per inch, the plotter's addressable resolution of raster images on the media.

driver   Configuration data used by software to control input and output between the computer and a peripheral device (e.g., a plotter).

handshake   RS-232-C communication between a computer and the plotter about the availability of I/O buffer space. A handshake ensures correct and complete data transfer.

HP-GL/2   Hewlett-Packard's standard graphics language for its plotters.

initialize   To set plotter conditions to known default values.

interface   Anything (a cable, for example) used to join components of a computer system so they function in a compatible and coordinated fashion. Also, standards which allow systems to connect with each other (e.g., HP-IB, RS-232-C).

interface cable   The data transmission cable used to connect a peripheral device to a computer. Most devices require an HP-IB, Centronics, or RS-232-C interface cable.

I/O error   A data transmission error between a computer and a peripheral. Examples of I/O errors are mismatched interface conditions, such as baud rate and parity.

menu   Messages and options displayed on the plotter's front-panel display.

overflow   To exceed the capacity of a buffer's storage space. When a buffer overflows, the excess data is lost.

palette   A set of sixteen pens (numbered 0 through 15) for which width and % shading are defined from the plotter's front panel.

parallel interface   An interface type in which a separate wire is used for each data bit in a byte or word and all bits are transferred simultaneously. HP-IB and Centronics are parallel interfaces.

parity   An error-checking method for information transfer between a computer and a peripheral device. Parity is used to check the accuracy of binary data.

peripheral (device)   A device separate from, but used with, a computer. For example, a disc drive, printer, or plotter.

raster   1. A matrix of dots, or pixels, where each pixel is defined by a bit. A bit that is "on" will print a dot on the paper. A bit that is "off" will leave the area blank. 2. A method for defining a plot directly in terms of the pixels rather than as vectors.

resolution   A measure of image sharpness expressed as a number of lines per unit length. When referring to plotters, addressable resolution means the smallest move the plotter can make programmatically.

RS-232-C interface   A serial interface standardized by the Electronic Industries Association Standard RS-232-C.

serial interface   A serial interface uses a single data line to transfer data bits sequentially between devices. RS-232-C is a serial interface.

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